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MASTER'S THESIS

PLANT PORN

**ANALYSIS OF THE SOCIAL MEDIA
FASCINATION WITH INDOOR PLANTS
PHOTOGRAPHY**

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PLANT PORN

**ANALÝZA SOCIÁLNÍCH MÉDIÍ A
OKOUZLENÍ FOTOGRAFIEMI
POKOJOVÝCH ROSTLIN**

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D e c l a r a t i o n

I declare that I have prepared my Master's Thesis independently on the following topic:

under the expert guidance of my thesis advisor and with the use of the cited literature and sources.

Prague, date: Signature

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Abstract

At least from 2015, the trend of indoors plants is gaining in popularity again. Many social media, mostly Instagram, are filled with a vast amount of indoor plant photographs. A new wave of content creators began to focus their interest on houseplants. The core concepts and questions that will be tackled by this thesis go as follows: What is the start of the popularity of houseplants? What is the reason for the fascination with indoor plants in recent years? This thesis methodologically draws on Netnography to discuss and analyze the background and development of plant porn subculture. What is the definition of plant porn, and reasons behind its ever-growing popularity, what are the participants' intentions?

Keywords: plant porn, social media, Instagram, subculture

Abstrakt

Nejpozději od roku 2015 lze zaznamenat výrazný nárůst popularity pěstování pokojových rostlin. Mnohá sociální média – zejména Instagram – jsou plná fotografií pokojových rostlin; nová vlna obsahových tvůrců začala na sociálních médiích zaměřovat svůj zájem právě na pokojové rostliny. Základní otázky, které si tato práce klade, jsou následující: Kdy a kde lze vystopovat počátky popularity pokojových rostlin? Co je v posledních letech důvodem vzrůstajícího okouzlení pokojovými rostlinami? Jakou roli v tomto okouzlení hrají sociální média? Práce metodologicky vychází z netnografie a snaží se vymezit, co je to plant porn, jak se vyvíjela plantporn subkultura a jaké jsou důvody její stále rostoucí popularity.

Klíčová slova: plant porn, sociální média, Instagram, subkultura

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Introduction

In recent years, at least from 2015, we can see that the trend of indoor plants is gaining popularity. This traditional topic is attracting people from multiple demographics and age groups ranging from teenagers, adults to seniors. Some people are just attracted to the pictures of plants on social media, while others are actively growing their plants and posting their plants photographs. Many social media platforms, like Instagram, are filled with massive amounts and a wide variety of indoor plant photos. The different sets of photos include well-decorated interiors with numerous potted plants, shelves decorated with beautiful and healthy plants, selfies with plants arrangement, hands holding a perfect potted plant, or minimalistic pictures of plants close up. Reaching the heights of popularity, one of the most popular and representative indoor plants, and the frequently mentioned fixed subject of these photos is *Monstera Deliciosa*. *Monstera* has gained spike on popularity at least since the year 2015. In the same year, according to google trends, from that time, the keyword "indoor plants" started to gain popularity quickly. A new wave of content creators like bloggers, vloggers, photographers, and others began to dedicate their interest in urban gardening and giving out tips on how to care about the plants professionally. From this time, the so-called houseplant trend is continuously rising, which shows even on the business side of this field.

The group of people fascinated by this trend was growing. In time this evolved, and the subculture of plant porn emerged into the light of this world. Plant porn is leveraging on the popularity of a trend called food porn, which became a global sensation decades ago, and from that time became part of everybody's life. The core concepts and questions that will be tackled by this thesis go as follows: What is the start of the popularity of houseplants? What is the reason for the fascination with indoor plants in recent years? What is the online plant community? What is the definition of plant porn and how it looks like?

The core aspects of this thesis are to discuss and analyze the background, development, and actual state of plant porn subculture, and reasons behind its overgrowing popularity in time.

The research approach of this thesis is mixed research with some Netnographic features[1] or digital ethnography, which is an online research method originating in ethnography and has been used for research for many years. The specific methods in this thesis are online survey, in-depth interview and object detection.

History of outdoor and indoor gardening

The definition of indoor plants

The definition of indoor plants or houseplant is quite straightforward, which means any plant adapted for nursing in the interior. The most common indoor plants are exotic plants native to the tropics and sub-tropics, which are rather warm and frost-free parts of the world. Those houseplants species are usually appropriately adjusting to the warm and dry conditions of indoor microclimate.[2]

Although theoretically, most plants can be grown successfully indoors, there are some groups of plants that are generally considered the best houseplants, like the most popular Arums, Succulents, Cactus, Marantaceae, Ferns, and Palms. All have been long favorites for their universal attractiveness and relative ease of maintenance. A selection of the more popularly preferred houseplants follows, under two sections: foliage plants (some of them also bear delightful flowers) and flowering plants (species kept primarily for their flowers).

In this thesis, when discussing indoor plants, foliage plants will be the main subject (including both foliage and flowering plants, like Hoya with various leaf colors and shapes). The reason is that foliage plants usually demand low maintenance and less sunlight requirement. In contrast, flowering plants usually need high light intensity, careful watering, and day-night differences in temperature, which are not so easy for everyone.

The brief history of outdoor gardening

The usage of indoor plants should have a length history. The origin of indoor plants can be traced back to the early Neolithic period (about 10,000 BCE).[3] During that time, humans learned to domesticate crops. The history of indoor plants is entirely related to the history of the garden. The garden is usually considered to be the extension of the house. In American English, an outdoor space attached to a house is known as a yard. What is a garden? The term is "generally understood to denote a planned outdoor space distinguished from its surroundings by either a formal enclosure or a marked stylistic difference".[4]

As described by Campbell[4], the enclosure of outdoor space began from 10,000 BCE. The earliest documented gardens were in the area acknowledged as the Fertile Crescent, which spread from Egypt north-east through the eastern Mediterranean and then south-east to the Persian Gulf. The Garden of Eden is traditionally positioned in southern Mesopotamia, the east end of the Crescent, near the convergence of the Tigris and the Euphrates. In recordings, the most first documented gardens in Egyptian derive from the period of the Old Kingdom (c.2575–c.2150 BCE). The most well-known illustration(fig. 1) of an Egyptian garden was found in the funerary chapel of Sennufer, above his burial chamber (Tomb 96 in the Western Valley). It is a comprehensive and highly developed garden: The garden is circled by a high mud wall, and guests could visit by boat at the garden entrance. There are three rooms and four ponds with ducks and lotus, and lines of palm trees on the sides. And the Hanging Gardens of Babylon (if it really existed) is around 600 BCE.[5]

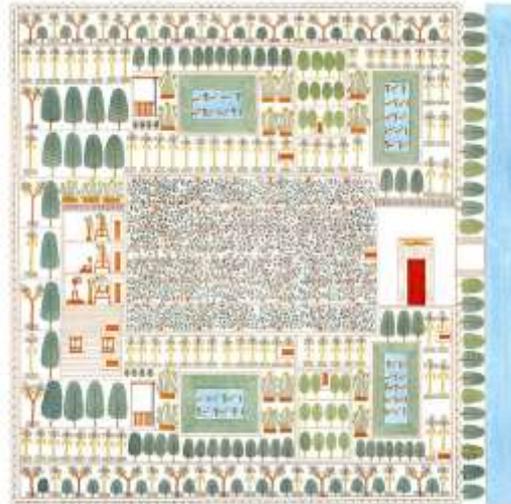


fig. 1 The garden painting from Sennufer's tomb (tomb 96 in Thebes), from TURNER 2005, fig. 2.16

In ancient Greece, due to the rapid development of the city, the land for urban residents was restricted. The scale of the outdoor garden was reduced accordingly. During this period, the urban life led to houses built around central individual courtyards. The courtyard or peristyle lined with columns was exposed to the sky and separated from the street. In the peristyle was a garden consisting of water supply and potted plants. In ancient Rome, gardens derived from the Greek, those in the seaside resorts of Pompeii and Herculaneum (1st century BCE) following the Hellenistic pattern.

South Asia has a long and rich cultural history. Most of the ancient gardens have been superimposed with later Islamic or Western gardens. The surviving evidence for these old gardens is often literary and artistic rather than archaeological. The most remarkable exceptional survivor of the ancient gardens of the subcontinent is Sigiriya, a Buddhist site in central Sri Lanka. Considering the broader context of Buddhist cultures, this is part of the long history of Buddhist gardens that influence the traditions of China and Japan. In China, the park preceded the garden. In the Zhou Dynasty Period (c.1046–256 BCE), the evidence of inscriptions implies that enclosed royal hunting parks were built, though there are no documents of such parks. The garden in China might be considered to have established in the Han Period (206 BCE – 220 CE).

As to the medieval European gardens, there is none survives in its initial construction or its original design. There are some recordings in

written documents and visual representations. The physical remainings of the peristyle gardens of Roman villas became the cloisters of Christian basilicas.

In the 4th and 5th centuries, the Eastern Empire, centered on Constantinople, destroyed Roman civilization and the gardens of western Europe. The empire maintained its hold on Greece and much of Asia Minor for another millennium, and Byzantine gardens persisted in the Hellenistic tradition. At the beginning of the 7th century, the Arabs progressively occupied much of western Asia, Egypt, the North African coast, and Spain. In the process, they spread characteristics of Persian and Byzantine gardens over the Mediterranean, as far as the Iberian Peninsula. The typical feature of these gardens was the application of water. It is not only for plants to grow, but also because it cooled the air and delightful sound of its movement.

In the pre-Columbian societies of Central and South America, there is less sign of gardens in the Maya and the Inca Empire. Still, there is considerable proof of the Aztec gardens. By the mid-thirteenth century, in the Aztec capital of Tenochtitlán (now Mexico City), which was circled by lakes, people created gardens on human-made islands (now known as chinampas) to enlarge the quantity of land. Chinampas provided both food and flowers to the towns. In the mid-fifteenth century, Motecuhzuma I had constructed a walled garden with ornamental and medicinal plants, and the place now the Bosque de Chapultepec.

From Renaissance to modern (15th to 20th centuries), with the increasing prosperity, the gardens of western Europe had an immense development, such as Italy by the mid-15th century. Furthermore, these changes presented the concept that house and garden were a combined, interdependent unity. The gardens became less enclosed and had a more actual extension. Flowers were widely applied in most Italian gardens. Trimmed herbs and evergreens, like ilex, cypress, laurel, and ivy, were given further emphasis.

In the last quarter of the 16th and first quarter of the 17th centuries, the French overran Italy and introduced the Italian garden to France. In the early 18th century, French culture dominated Europe and led to

almost widespread choosing of Versailles as the pattern for magnificent gardens.

In the late 18th-century, growing world trade and voyage brought to Europe abundance of exotic tropical plants. The flowering season of gardens got significantly lengthened. The accessibility of exotic plants and the development of natural science, not only gave renewed life to the flower garden but stepped toward the evolution from a garden to a museum of plants. Nevertheless, it is still not the garden in the modern sense. The plant collectors' garden, or "gardenesque" style, was introduced and mostly advanced by J.C. Loudon in the mid-19th century.

Western gardens for many centuries were architectural, functioning as open-air rooms and confirming the Western persistence on environmental control. As to Eastern gardens, different tradition and philosophical approach lead to a different type. Chinese culture penetrated East Asia and infiltrated Japan. One of the elements in the Japanese garden was the Chinese aesthetic of the appreciation of stones (aiseki): Chinese scholar's rocks. In the Heian period (794–1185 CE), the earliest examples of the dry landscape (karesansui, 'dry mountain and water') garden or stone gardens appeared. The most well-known dry landscape garden is the Ryōan-ji Garden in Kyoto. Furthermore, Japanese gardening has had and continues to inspire the gardens of the West, especially in the United States. [4][5]

The brief history of indoor gardening

Houseplants for interiors are nothing new. In the eighteenth century, city inhabitants were as attuned to the trend and benefits of indoor gardening as nowadays' millennials. Nevertheless, some indoor plants, which are everywhere now, were used to be the preserve of an elite few.

The application of indoor gardening should have a very long history, but there are no surviving documents about the origin. In ancient Egypt, pots were used for transporting plants. Some evergreen low-maintenance Mediterranean plants, like *Chamaerops humilis* and *Laurus nobilis*, had has been used as houseplants since then till nowadays. [6]

In ancient Greece, Crete people use pots with holes at the bottom to grow date palm and papyrus for decoration and enjoyment. In the ancient Rome period, around 2000 BCE, there were indoor gardening already. Before the concept of houseplants, scented and flowering plants were brought indoors for fragrance and blooms. For example, Egyptian pharaoh Hatshepsut (c. 1503-1482 BCE) used potted plants like *Boswellia* for indoor aroma.[7] Following the decline of the Roman Empire, ornamental houseplants mostly disappeared from Europe. Till the European Renaissance, houseplants became fashionable again.[8]

In the early period, most houseplants were flowering plants and annual or biennial plants because of the limitation of the indoor environment and technology. They could only survive for a while. Until the world trade of the seventeenth century, the development of transport technologies helped the progress of botany and the rise of curiosities into houseplants. What is more, the greenhouse is one of the essential factors which drive the extension of indoor plants.

The greenhouse means "a structure with walls and roof made chiefly of transparent material, such as glass, in which plants requiring regulated climatic conditions are grown.[9] It is fundamental for plants to get rid of the geography restriction, and also it is helpful for the cultivation of plants, which is suitable for the indoor environment. Besides, the flowering season could be adjusted in the greenhouse. The earliest version of a greenhouse is from the ancient Rome time, which is called hothouse. As

early as 1545, in Italy, Orangery was built for orange and other fruit trees to be protected through the winter. Citrus trees were a status symbol at that time.[10] The interior design trend of indoor plants had not started yet. However, until more and more new plants were discovered, the ornamental value of houseplants would subsequently become visible.

By the end of the seventeenth century and the start of the eighteenth century, nurseries were increasing and stocked thousands of plants, including citrus, jasmines, bays, myrtles, agaves, and aloes. Flowering bulbs, grown in pots, could easily be brought, such as narcissi, hyacinths, and tulips. They were being 'forced' to flower in winter and early spring in the warmth of indoors. Hyacinths were the most prized of all, for their especial popularity. There is also a newly burgeoning business in the market for ceramics artisans and other decorative products manufacturers. A wide range of decorative containers was made for display plants indoors, like French cache-pot, literally a pot in which to hide another. As informality took over the garden, so did a more natural form of arranging and displaying plants indoors. Cabinet makers produced tiered staging and stands to display plant collections. These were often arranged asymmetrically and placed next to French windows to maximize their exposure to light.

In the eighteenth and nineteenth centuries, with the increasing imports of exotic plants and the binomial nomenclature scientific classification of Carl Linnaeus, people's interest in ornamental indoor plants also increased, and the fashion for indoor plants was growing. Around 1829, Dr. Nathaniel Bagshaw Ward invented the Wardian case (an early type of terrarium, a sealed protective container for plants). This case raised the chances of imported plants to survive in long-distance transportation.[11] Bigger greenhouses like Syon House was built with "Cape" plants from South Africa, "New Holland" plants from Australia, and Camellias from China.[12]

In the Victorian era, the middle class owned houseplants. One of the reasons is that the Victorian homes were dark and smoky from the gas lamps inside and coal dust outside. Plants were hard to be kept in these conditions, except two particularly hardy plants thrived – the Kentia palm and the aspidistra. The aspidistra, first imported from China in 1823, soon

gained its well-known name of Cast-Iron Plant, capable of surviving in the dark and fume-polluted Victorian homes. With the progress of the industrial revolution, the advancements in architecture allowed for well-heated houses and added natural light, which provided the proper environment for indoor plants.

The houseplants fashion approached its peak in the nineteenth century as increasing quantities of tropical and sub-tropical plants were transported from over the globe. The zenith of plant introduction was believably in the second half of the nineteenth century. Railways also supported plants to be conveyed faster than ever, and plant hunters were reaching more exotic destinations ever.

At that time, Britain is interested in all novelty plants, and there was a competition for new plants, especially orchids. Most orchids as epiphytes habitat in the tropical rainforest on the apical branches, similar to other plants of the Bromeliad family and the Arums family. The orchid family is enormous, about 28,000 species. Chinese orchid cultivation and appreciation were the scholar's art for many centuries and became the well-known brushing painting theme since the Song Dynasty (960-1279 CE). The western orchid collecting hobby began in Victorian England. It is for wealthy people, with sufficient space for greenhouses and plenty of money to get the rare species. In the second half of the nineteenth century, orchids were valued above all other flowers. The hobby became so obsessing that it was known in Victorian times as Orchidelirium, because of the obsessed collectors. However, this was also the start of an ecological disaster. With the spread of orchid fever, plant hunters rubbed the entire groups in the wild, and illegal trade in precious orchids still exists now.[13][14]

What is more, fern fever appeared in Victorian Britain and much of the English-speaking world. Naturalist Charles Kingsley even invented a name for this in 1855: Pteridomania. Fern hunting became another hobby, and ferneries shower up in gardens. People would go off at the weekend on fern-hunting in the countryside.

By the early eighteenth century, pelargoniums were growing in botanical gardens and were planted by wealthy collectors throughout Europe. Plant growers competed to create the new attractive blooms and

unique leaf patterns, reaching a climax point in Victorian England. By the end of the nineteenth century, pelargoniums were used as indoor plants widely, and almost everyone could afford one.

Books and magazines on gardening and houseplants also became available, further increasing the desire for houseplants. More and more advice became available to gardeners, helping them to understand their plants. The longest-running horticultural magazine, Curtis's Botanical Magazine, started in 1787 and continues to this day, highlights about 1,000 different introduced plants. By the mid-nineteenth century, there were eight weekly gardening magazines and several monthlies. Public botanical gardens became a source of inspiration for houseplants. Gardening books and magazines flourished alongside home decoration advice manuals, where houseplants increasingly played a role in interior design.

The representation of houseplants as a social status symbol began in the advanced sixteenth century until the beginning of the twentieth century. The start of the twentieth century observed the change of views towards houseplants. After World War One, the 20th century arrived, and with its modernism, and all that Victorian esthetics began to look dated. When modernity influenced the homes, cactuses and succulents became the houseplants of choice. Their more redefined architectural shapes suited the new style of the time.

In the 1920s, nurseries started to sell potted plants grown already in the container, with thick root systems. Home gardeners could finally select plants that did not have to start from bulbs or seeds. This unforeseen availability and variety of plants pushed even more garden trends. Plant and garden societies began to be established. The popular plants in the 1930s were roses, hollyhocks, foxglove, delphiniums, carnations, and columbines.

Around the 1950s, people were more frequently living in flats rather than houses, and only several had gardens. The demand for Scandinavian design, including the Swedish love for indoor plants, brought a reawakening of houseplants. Houseplants were embraced back as a cheap and easy way to include greenery into the humbler houses and flats of the postwar era.

In the 1960s, care for these plants became much more comfortable with the introduction of plant care tags that included information on watering, lighting conditions, and temperature.

The rise of the office spaces and workday prompted the development of indoor plant applications. New propagation and breeding techniques have significantly widened the variety and availability of houseplants while reducing their prices. Micropropagation has allowed houseplants, like moth orchids, to be produced in enormous numbers, with tiny parts of a plant grown on in Petri plates within a laboratory. The resultant plants are genetically identical, and bulk production means orchids are more affordable: a third or even a quarter of the retail price of 15 years ago. This also has led to a transformation in attitude towards orchids and other plants, and more accessibility of rare species like some plants from Arums family.

Terrariums and bottle gardens also popped in popularity in the 1970s, displayed in craft books and lifestyle magazines during the decade. Bonsai became fashionable in the 1980s. Orchids mania exploded again during the 1990s, because of the Asian trend. Moreover, NASA scientist Bill Wolverton published a report proposing that houseplants could purify the indoor air, which drove people buying houseplants like spider plants and Golden pothos. In the early 2000s, lucky bamboo showed up everywhere, and succulents backed to home decor. And fiddle-leaf figs became the hottest plant around 2015, along with *Monstera deliciosa*.

Over the last sixty years, houseplants are coming back in fashion again. Society is acutely aware of the benefits of bringing plants indoors. Our motives may have changed, but having greenery in our homes is just as essential as it was in 16th-century for urban residents.[15][16][17][18] However, the houseplant trend in the 21st century is different from before. For more understanding, we will discuss in the next chapter.

Houseplant trend in the 21st century

The start of the houseplants trend

In recent years, people's attitude to house plants has changed. Instead of giving cut flowers, more and more people will choose to exchange living house plants, like well-known low-maintenance Succulents, Cactus and Tillandsia.[19]

For some people, like millennials, would choose much more affordable and various houseplants to decorate their home, except for the ornamental function, there are well-known benefits like indoor air purification and even positive psychological and physical effect on the human.[20] Some of them have plant parenthood relationship with their plants. They even give names to their plants.[21]

According to the web search data from Google Trends since 2010 (as shown in the line chart below), houseplants are getting popular at least from 2015. The trend is increasing more and more quickly, and every year after 2015, these keywords are more popular than last year, except the peak of "succulents" (the green line) in 2019 slightly dropped. This tiny decline may reflect that more and more people prefer foliage plants, like "monstera". This is also one of the reasons why this thesis is more concentrated on the analysis of the fascination with foliage plants with attractive leaves.

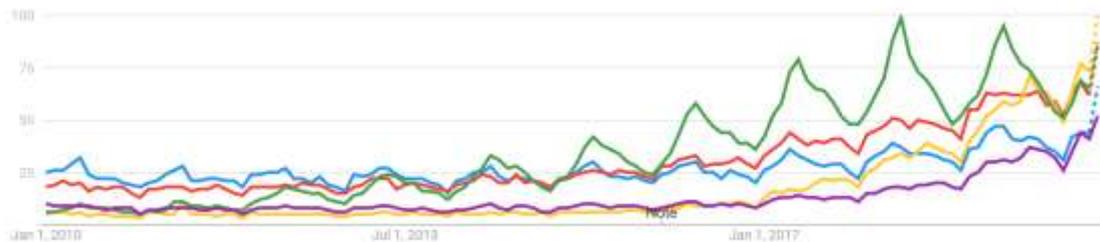


fig. 2 Google Trends line chart

In fig. 2, "numbers represent search interest relative to the highest point on the chart for the given region and time. A value of 100 is the peak popularity for the term. A value of 50 means that the term is half as popular. A score of 0 means there was not enough data for this term." [22]

The blue line displays "house plants". The red line is "indoor plants", which is the synonyms word of "house plants". Both keywords have a similar frequency of fluctuations. The summit months are in spring and summer in the Northern Hemisphere, while the bottom months are in winter for the reason that 90% of people live in the Northern Hemisphere and spring and summer is the growing season for most houseplants. Moreover, from August 2015, people prefer indoor plants instead of house plants as the search keyword.

The yellow line stands for "Monstera", which is one of the hottest and typical houseplants over the years. People usually refer to *Monstera deliciosa* as *Monstera*, also known as the Swiss cheese plant, which is the most popular and common one from the genus. *Monstera* is a genus of around 50 species of plants in the arum family, Araceae and originates from Central and South America. Their popularity of *Monstera deliciosa* as a houseplant is because they can endure poor light and low humidity. The first recording of *Monstera deliciosa* in western literature was 1693 (under a different name), and was discovered around 1840 in Mexico and Guatemala.[23] Since the early twentieth century, some of this species was a horticultural success and quickly grew everywhere in Europe and other parts of the world. Nowadays, it continues growing widely in both tropical and temperate countries, and at least since 2014, it became a fixed subject of the interior. In the line chart, the increasing rate of "monstera" is quickest, and "monstera" is supposed to be one of the hottest Google search keywords in 2020 (value of 100).

The green line represents "succulents", which are plants with thickened and fleshy parts, usually to retain water in dry environments, like the Crassulaceae, also known as the stonecrop family. These plants usually are so effortless to take care of and easy to propagate that they are so popular for a long time. Keyword "succulents" as classic traditional houseplants is chosen to supplementary validate the rising trend of houseplants.

The purple line is "Philodendron", which is also a large genus of plants in the family Araceae, like "monstera". Philodendrons are traditional, also trendy indoor plants. In recent years, more and more people are into collect uncommon or rare plants species, like philodendron hastatum, philodendron pink princess, and philodendron Florida ghost. This line may reflect the subset of the houseplants trend.

Based on these keywords, people usually search for the shopping way of indoor plants, the recommendation of ornamental plants, the harmless plants for pets, the advantages of plants (mostly air purifying), etc..

In conclusion, although the official start of the new trend of indoor plants in this century is hard to locate, in the mean of Google Trends data, we can tell at least from 2015 or 2016 the trend started and has been expanding increasingly.

Millennials and houseplants trend

Indoor gardening is a hobby with a rich tradition, and most people think their families influence their gardening hobby. While, in the era of Web 3.0 and mass images, the time of smartphone and social media addiction, gardening hobby is more visible, and naturally the Millennials bring the traditional houseplants and new species into a new stage. Millennials, also known as Generation Y (or only Gen Y), are the demographic group following Generation X and preceding Generation Z. Researchers and mass media use the early 1980s as beginning birth years and the mid-1990s to early 2000s as ending birth years, with 1981 to 1996 a universally admitted defining range for the generation.[24][25]

The Millennials and their connection with indoor plants is a fresh one, compared to their parents or grandparents. According to the 2016 National Gardening Report of the USA, in 2015, six million new Americans started gardening, and five million of them were at the age of 18 to 34 years old. Thirty-seven percent of millennials were growing plants indoors, compared to twenty-eight percent of their parents, the Boomers. According to the 2018 National Gardening Survey, millennials occupy one-

third of all gardening households. Furthermore, IBISWorld forecasted in 2016 that houseplants growing would take an average of 6.3 percent per year each year through 2021.[26]

There are many reasons why young people in their 20s or 30s are so into indoor plants and are attempting to be green thumbs. One of which is that more millennials move to bigger cities and live in rented rooms. People often have a more limited chance of exposure to nature, which is where houseplants come into play. What is more, millennials are seemingly more likely to connect gardening and plants with a particular look or design aesthetic, while the previous generations' focus on gardening as a curated skill. The "plant aesthetic" or plant lifestyle is widespread among social media and interior design blogs and magazines. A trend is not a genuine trend unless it presents itself well to social media.[27] The Millennials are enthusiastic about their health and living environment and are going to spend money on what makes them happy.

It is generally believed that the primary effects of the potential of the indoor plants on air quality are formaldehyde, benzene, and toluene removal, followed by an increase in humidity and a decrease in temperature. Using various plant species can further improve air quality and indoor microclimates.[28]

Researchers have shown that shared outdoor spaces with a lot of greenery lower symptoms of depression, anxiety, and other mood disorders. Indoor gardening also has many of the identical effects. Being enclosed with indoor plants can improve mood, and tending them alleviates symptoms of depression and anxiety. The reason why some people find looking at their green plants so calming is the vision of nature may make the brain produce more serotonin. Active interaction with indoor plants can decrease physiological and psychological stress compared with mental work, by suppression of sympathetic nervous system activity and diastolic blood pressure.[29][30][31][32] Furthermore, one another study shows that poorer residents in greener areas were, in general, happier than richer ones in treeless areas.[33]

Indoor plants fascination in 21st century

The 21st century is the age of social media. We put our interests and hobbies on social media platforms, and they feed us with similar results. Social media help to shape many communities, and one of them is the online plant lovers community too. Having indoor plants is not a new culture anymore. However, social media like Instagram, Facebook, and YouTube have been helping to expand this community by sparking the interest of many newcomers. One of those resurrected trends that are circulating on Instagram nowadays is the love for plants. We have seen the growth of many new communities with different names that are connecting through a mutual love for plants. The emergence of hashtags that grouping those people has been significant. We can see those popular hashtags that are talking about plant lifestyle: #houseplantclub, #urbanjunglebloggers, #plantmom, #crazyplantlady, #boyswithplants, #plantdady and #plantporn. These plants related hashtags can be different in small specific details or aesthetics. However, these hashtags reflect the growing plant lifestyle and subculture in the online plant community from the middle of 2010s. Some of these plant lovers identify themselves as plant parents or plant hunters and call their home as an "Urban Jungle".

There are new titles related to the houseplants trend: plant stylists, for example, Hilton Carter and Satoshi Kawamoto; plantfluencers (plant influencers), such as Summer Rayne Oakes, who may be the original plant influencer and Darryl Cheng (Instagramer houseplantjournal).[34]

The so-called plantfluencers could split into two types: those who stay out of the photographs and almost only their plant styles, and those for whom plants are selfie accessories. Many plant shops, gardening websites, and plant nurseries also join the community. Especially on Instagram, they also contribute mass photograph posts into this category. They have their distinguishable hashtags like #monsteramondays with over 300 000 posts. This hashtag was propagated in 2016 by the co-creator of Instagramer Houseplantclub with over 800 000 followers.

Moreover, many people start up new specific Instagram plant accounts for communicating with the plant community and sharing plant photographs, stories, and experiences. The names of their plant account usually contain distinct similar keywords like plant (plants, plnt), jungle, green(greenery), indoor (home, house), leaf(foliage), plantmom(dad), or specific plant names as cactus, succulent, and monstera. They will show the daily updates of their lovely plants, and ask for or give suggestions about care tips. As shown in the fig. 3, plant lovers are communicating in the Instagram story to show each other their new leaves. Furthermore, in fig. 4, one plant shop in South Africa posted an interactive game with (potential) customers, which may be used as a marketing search method.



fig. 3 Screenshot of Instagram story posts within plant community, showing their new leaves.



fig. 4 Screenshot of an interactive game

In this community, there are a lot of plant shops and traders or plant stylists and plant influencers. Whether newbie or professional collectors, like other collecting behavior, it is like the Pokémon collecting game. The seller and consumer co-create the consuming environment.[35] Plant sellers or content creators also assist in the socialization of new members, aid communications within the subculture, and support events that provide the activities of the subculture.[36]

Lifestyles and subcultures are tools through which people say--both to themselves and to others--who they think they are, who they think they are similar to, and who they think they are different from. They are ways which people use to find their identity and reconsider their life. "Lifestyles and subcultures are lenses through which we, as observers, analyze society, and orientate ourselves within it, looking for similarities and differences among individuals and collectivities which allow us to understand their thoughts and their actions." [37] Raymond Williams stated that culture is "a whole way of life" and "culture is ordinary".[38]

The documentation and presentation of the ordinary things happening in the nowness and the ordinary life of the new decade are meaningful. To explore more about the online plant community and to understand their subcultures, one brief online survey and in-depth interviews were made,

with the features of Netnography, intention of illustrating the general and detailed characteristics of these people.

An online survey for the online plant community

For now, there seems to be no accessible statistical data on the online plant community members. Therefore, I chose an online survey to investigate the general characteristics of these people, which you can check in Appendix A. In April 2020, I posted Google Form online survey in several Facebook plants groups: Calathea Lovers, Succulent Addicts United, Planet Anthurium, International Aroid Society, GREEN SWAP BRNO, GREEN SWAP (výměna rostlin); Reddit groups: houseplants, succulents, IndoorGarden, AmericanPlantSwap, TakeaPlantLeaveaPlant, terrariums, gardening, orchids, PlantPorn, BotanicalPorn; and Instagram. This survey contains ten single choice or multiple-choice questions for basic information and three open answer questions for further understanding of this community. This survey is an online survey disseminated via social networks; thus, the results are valid only for those respondents who were willing to fill out this survey.

The result is that there are 1065 people who submitted their responses. In the 1065 participants, 85.9% of plant lovers are female, 12% are male, and 2.2% are others. The age of 6.1% of participants are below 20, 55.9% are between 20 to 30 years old, 26% are from 30 to 40, and 12% are above 40. Based on the data, about 80% of people in the online plant community may be millennials. In 2020, the oldest millennial is 39 years old, and the youngest will turn 24 this year.

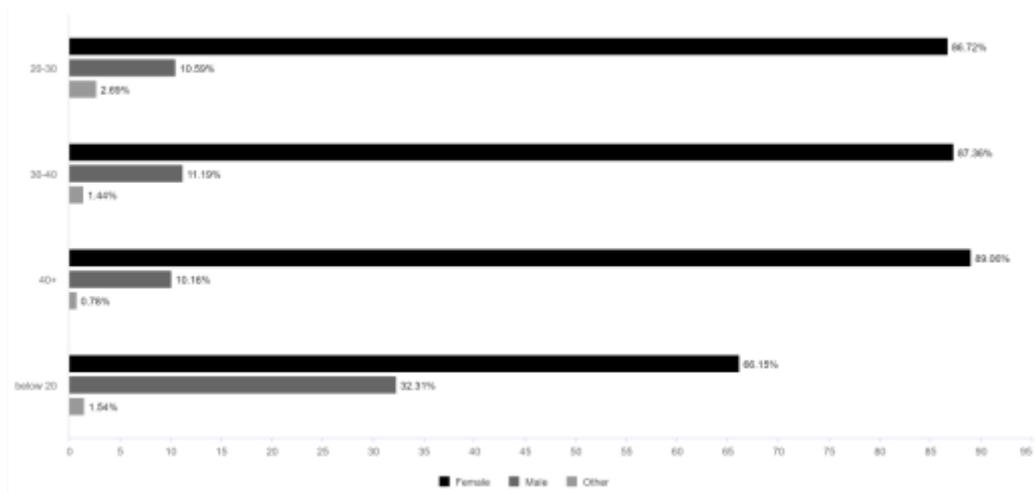


fig. 5 The comparison between age and gender

In fig. 5 The comparison between age and gender, we can tell that females of every age range are the central part of this group. As can be seen from the difference in percentage, the proportion of males below 20 years old is significantly higher than the average level by 12.02% in 32.31%. It seems like for the young generation of the 21st century, there may be more males who would be interested in gardening. However, only 65 samples are below 20 years old, which means this assumption needs more further data search.

As shown in fig. 6 The comparison between age and plants quantities, there are 19.34% of people own over 100 plants, and 49.2% of them have over 20 plants. The option "I don't count" is set up for the reason that many of them own so many plants so that they do not count anymore. For example, some people have many houseplants and also garden, which is hard to count by quantities other than species. As for this question of how many plants they have, the most significant part is people from 20 to 30 years old who own over 20 plants. Another two significant parts are people from 20 to 30 years old who own 5 to 20 plants, and from 30 to 40 years old who have over 20 plants.

Furthermore, the biggest part of people with over 100 plants is over 40 years old, which is 32.81% of people chose this one. And then it is the people from the age of 30 to 40. These data show that the leading consumer group of this community is people in the age of over 30.

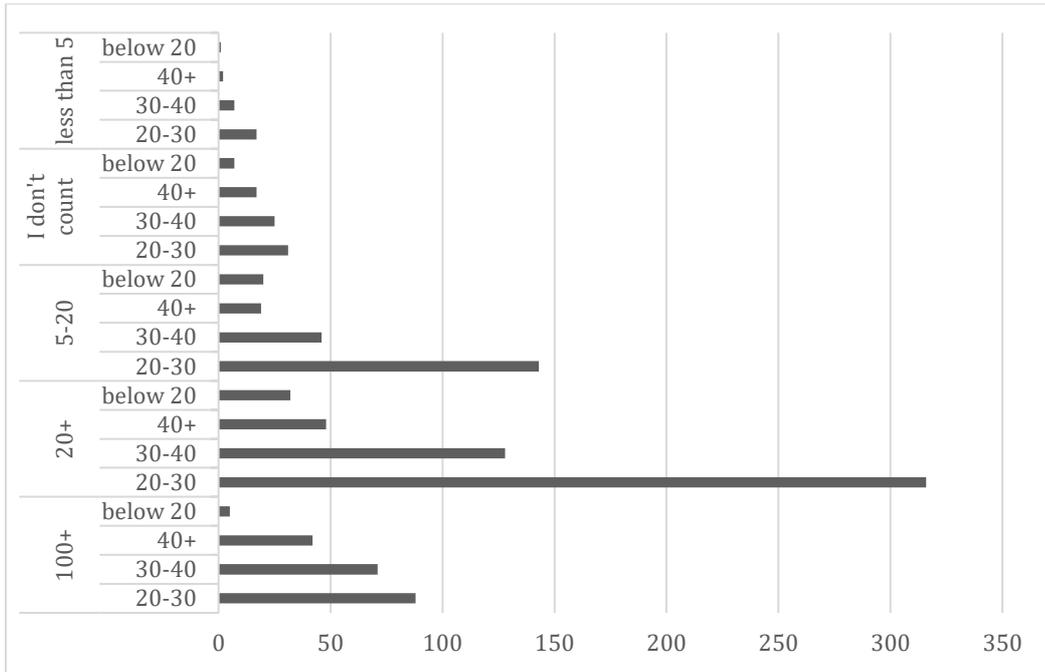


fig. 6 The comparison between age and plants quantities

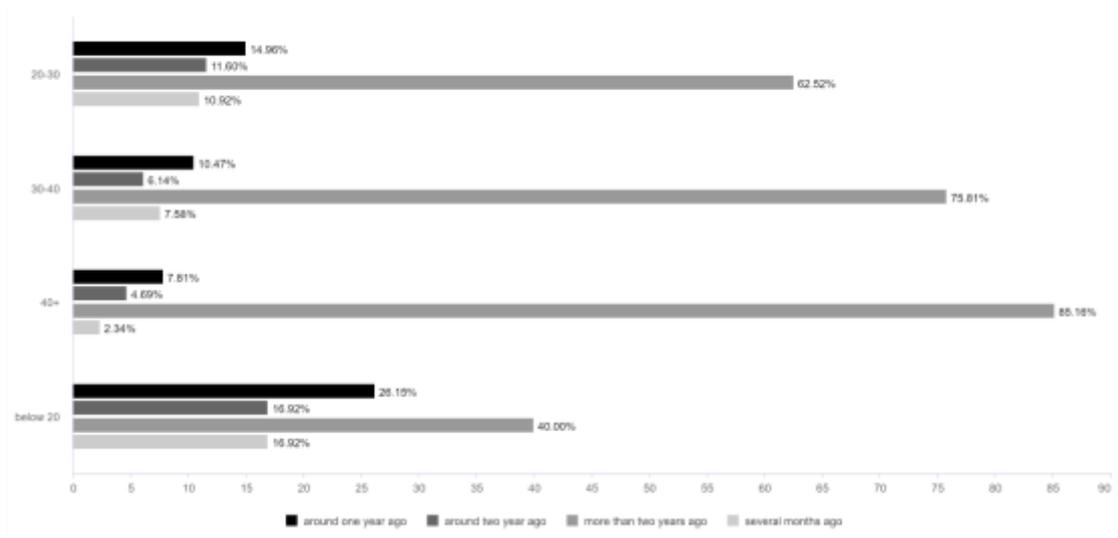


fig. 7 The comparison between age and when they start to own plants

In fig. 7 The comparison between age and when they start to own plants, this line chart shows that in every age range, 67.32% of the plant lovers all got their first indoor plants more than two years ago. Moreover, 9.39% of them just started several months ago. What is more, there are still some differences. As for people who had around one-year indoor plants experience, 26.15% of young people who are below 20 chose this one, which is much higher than the average level of 13.62% people with around one-year experience. We can say that even these online plant

communities are quite mature, with members from 10k to 100k, there are still a lot of new members joining in, especially young people below 20.

When they were asked about the multiple-choice, and also open-answer questions: who inspired them and what is their motivation, 57.5% of them chose "surrounding people", and 34.2% chose "Internet". Some participants mentioned they are inspired by YouTubers, like Jenna Marbles. She is an American YouTuber, with over twenty million subscribers. She posted one plant video "A Tour of My Plants" in March 2019, which has over six million views.

Moreover, there are 78.1% of them think that growing indoor plants is their hobby, 89.1% of them think that it is enjoyment, 72.4% of them use it for decoration, and 76.8% of them are looking for relaxation and stress relief from plants. Only 35.9% of them think about their function for the improvement of the indoor microclimate, such as air purifying. There are 3.8% of them use it for social media presence.

The setup of open answer questions is for collecting alternative opinions. Except for motives like the home decoration for plant's universal beauty, and practical functions such as food, herb medicine and improvement of air quality, there are some different motives:

- a) for their pets, like water quality control in fish tanks and better existence for reptiles;
- b) for their professions, like academic interest and scientific research;
- c) for their business, like horticulturalists and houseplant traders;
- d) for their physical health, like veggies lifestyle and slow living;
- e) for their mental health, like Autistic addiction and depression.

Moreover, there are other reasons like love for nature and green spaces, enjoyment of the responsibility, moving to the city and missing their greenery hometown, unavailable outdoor gardens, collecting rare plants, family tradition, replacement as pets, enjoyment of the responsibility, getting as a gift and learning to grow them.

From the results, there are 93.4% of plant loves do follow any plant-related content on social media. As for their role identification in the community, 80.6% of them think they are lurkers, and 21.5% think they

are content creators at the same time. There are also 10.23% of them only recognize themselves as content creators or contributors, including plant shops. In the community, people usually ask and also give advice, show their plants and appreciate other's plants, sell, purchase and exchange plants. Some of the survey participants think they are not part of the online plant community. Some of them think that they are swappers. A plant swap is swapping out plants with fellow local gardeners, usually are seeds and cuttings. There are swap groups on Facebook, Reddit and forums.[39]

In conclusion, in the online plant community, the core members are female between 20 to 40 years old. We may say female millennials. Social media do inspire some of them to grow houseplants or recall their fascination from childhood.

#UrbanJungle

For most people, the urban jungle means the concrete jungle, "a city or an area of a city with a high density of large, unattractive, modern buildings and which is perceived as an unpleasant living environment".[40]

However, for some plant lovers nowadays, the "Urban Jungle" is a trendy urban lifestyle connected with houseplants, which means growing a lot of plants indoors. They usually fill their living space with tropical and foliage plants, to achieve the "jungle" atmosphere. This concept also relates to healthy natural lifestyle and can be think as a style of home decoration. The #Urbanjungle on Instagram now includes over 3.7 million posts.

This concept can be traced back to the early 2010s and may be strongly related to the houseplants trend in the 70s of the last century. In that time, some magazines would call it "indoor jungle". This interior style might have been promoted by design blogs like Thejungalow, which were promoting a 1970s style renaissance, making indoor jungles of hanging plants, cactuses and snake ferns. One of the well-known promoters of this concept is the blog and Instagram account Urban Jungle Bloggers, with

over one million followers, founded in September 2013. Their hashtag #urbanjunglebloggers have over 1.3 million posts. Their first book Urban Jungle, Living and Styling with Plants, published in 2016, is a bestseller in 10 different languages.[41]

In the survey, there are 58.9% of the participants who have heard about #UrbanJungle. From the open answer questions about their opinion on #UrbanJungle, there are some people who do not agree with this concept. And some people accept it but would not build one.

In-Depth Interview

In this section, we will go through interviews that I have conducted with six members of the plant lovers community. I have decided to use a form of an in-depth interview with multiple different types of members in this community to get their opinion about plant fascination in the last few years to understand their love and dedication for plants.

At the end of 2019, I started to run a plant account: @plant_prn_addict, to get involved in the online community.(see fig. 8) On the Instagram plant community, many plant lovers have their specific plant accounts, which are dedicated to present their plant photographs and their plant life.

Furthermore, here are the hashtags I used: #plantporn #plantsofinstagram #plantlover #植物好き #植物のある暮らし #植物生活 #植物大好き #plantdaddy #plantdad #houseplants #houseplantsofinstagram #houseplantclub #indoorplants #indoorgardening #urbanjungle #urbanjunglebloggers #housedecor. I used typical houseplant hashtags to target the group. The Japanese and Chinese hashtags are chosen to expand the target group range to the eastern world, for the reason that Japanese and Chinese are both popular language and share some same characters, like #植物生活, which means living with plants.

I regularly posted 57 posts with the above hashtags to interact with them via following, giving likes to their posts, and reacting to their daily

Instagram stories. After a long time observation and imitation of their activities, I requested some of them as interviewees.



fig. 8 Screenshot of my Instagram account for research

Kim Ketchum (@blushbotanicals.conservatory)

Kim is the young lady from Chickasha in Oklahoma who is the founder and creator of a Blush Botanicals Tropical Conservatory, which is designed to work as horticulture therapy. To support her dream concept, she is posting many beautiful pictures of plants and even making giveaways for their followers where they can win unusual plants. One of the exciting things about her account is that she started on November 14, 2019. With her 172 posts and 1,174 followers, I have asked her what her opinion about many new plant accounts that are being created in the last few years is. Her main idea was, "I definitely have noticed that too. I think the marijuana industry has put some fuel to the fire when it comes to popularity in house plants/plants in general". She mentioned that she did research about gardening trends and that since the year 2018, there has been a boom in house plant purchases mostly between Millennials. She said that she is supporting the appearance of new accounts on Instagram and further comments with "I'm all for it, awareness is the greatest strength. Awareness sparks interest and interest sparks habits". As a horticulture and a business student, she noticed that the horticulture program is actually dying every semester. She also mentioned that around 80% of her peers in class are attending for medical marijuana

studies. She proceeds to explain that gardening has been integrated into her life since she was a child. When I asked about her opinion on term plant porn, she said "It's a funnier term for the effect of nature and human psychology."

Hung (@urban_hungle)

Mr. Hung, a plant lover from San Francisco, has 97 posts and 2,565 followers. His Instagram feed is filled with beautiful big leaves of Fiddle leaf figs and Monstera. His aesthetics, eye for detail, and great composition will catch the eye of many of his followers. His minimalistic but yet cozy style of photography radiates positive energy. I have asked Mr. Hung if he identifies himself as a plant daddy or plant parent. He mentioned that the interesting part about social media is that he can present himself any way he wants. "I call myself a plant mommy, plant parent...etc. I like plant parents...it's inclusive...I do prefer plant daddy". When I asked about the reason why he started his plant account early last October, he said that the main reason is that he used to post many plant-related pictures on his personal account. He said that he was afraid that his friends might have been bothered by his excessive posting, so he created a dedicated account for his passion. He mentioned that his interest in plants is rooted in his father. He says, "I've always liked plants ...my dad had a green thumb". He also mentioned that his passion got seriously only recently. Around two and a half years ago. "I find caring for them (plants) therapeutic. The routine of caring for them (plants) allows me to meditate and focus on something other than real life". With a question about if the inspiration of owning plants and creating his own Urban Jungle came in the form of influence from the plant community, he explains, "I didn't know much about the plant community". He further added that being part of a plant community on Instagram motivates him to collect more plants. On the topic of Urban Jungle, he said that he thinks that it's a good marketing approach. His explanation of Urban Jungle is the idea of "adding greenery into the concrete world". He said that for him, the most important aspects of an Urban Jungle are greenery and that "you just have to surround yourself with plants to be able to call it an

urban jungle". To answer a more in-depth question of what his jungle means to him, he answered, "When I think of my "jungle", I immediately think of my favorite plants...my fiddle leaf, my monstera. I also think about my house and how plants live in it." He also mentions that he is interested in low maintenance plants rather than expensive and rare species. He mentions that he heard the term plant porn and that he connects it just with pictures of plants.

Kevin (@kevinsgreenpets)

Mr. Kevin from Karlsruhe in Germany. He is a millennial plant lover with his 1,402 posts and 29.1k followers. He is a well-known plant influencer in the plant lovers community. His photography style consists mostly of close up pictures of leaves or smaller plants in pots. He is updating his followers about the growing process of his plants and many inspiring tips about plant care. His profile gives out the feeling of one big plant diary, where he notes down all important milestones in his planned parenthood. One of his hobbies is even creating his terrariums. He started his plant daddy journey in 2016.

He mentioned that he started with just one plant from IKEA and that her mom gifted him a few plants as well. He said that his interest started to grow when he found some interesting articles about plants on the Internet. He, like many others, has a specific plant account that is separated from his private one. He mentioned that he did not want to bother his friends with many plant pictures, so he created a dedicated account. When I asked about his opinion on creating a new identity as a plant daddy or parents, he said, "Every hobby can become part of your identity. Plants are no different". One of the best things about being part of a community for Kevin is that he made many new friends all over the world. He is one of the co-owner of account @philomemedron, which is a plant meme account. He later explains that his account is the very first plant meme account on Instagram. His opinion about what are the core aspects of creating a personal Urban Jungle is that all you really need are "just plants in an apartment in a city. Spread through the room, in a decorative manner". I have asked Kevin about his plant inspiration. He, as

a plant influencer, is the one who can be setting trends, but where is he taking inspiration from? Kevin: "I get inspired all the time. But mostly it's not from popular people but people with a smaller audience and niche interests". He further explains the difference between plant influencer and average lurkers when he gives insight that he spent almost no time in his feed, but all his time is about interacting with the plant lover community.

Klaar (@klaarism)

Klaar is the professional chef from Prague that also happened to be a plant lover. I have met her via Prague's Green Swap community. She helped me with my previous projects regarding plants. I have taken pictures of her plants, so I knew she would be an ideal candidate for an interview as a vivid plant lover and active participant in plant lovers community events. With more than one thousand posts and 460 followers, she has a private account. She can be classified as a community lurker. She said that her motives to start with owning plants began around seven years ago when she moved in with her partner. She thought that space was not so cozy, so she started to decorate it with plants. She mentioned that those times were a difficult time in her life, and having plants helped her with her daily life, "Caring about them was soothing. Antidepressants, so to speak, because I didn't want to take medication and having hands dirty from the soil is the best medicine for me". She mentioned that her plants are good decoration but have even air purifying capabilities. When I asked about her opinion on Urban Jungle, she said that for her, Urban Jungle does not include only indoors but outdoors as well.

"Well, when you say that I imagine spaces in the city which we people are trying to get more green "Not only in our flats, living rooms filled with monstera and stuff, kitchens with herbs in the windows but also community gardens, using unused spaces for teaching kids that now all the food you buy in supermarkets. Green roofs, much needed for cooling down the city and keeping the wildlife in". She also proceeds to explain that her favorite plant pictures are the simple one that reminds her of her childhood. She explains that her grandmother used to have many plants, and that is how her love for plants might have started. She confessed that

she likes to collect even rare species of plants. "Yes, I have most of them. Classic green, golden, marble queen, neon, n'joy...". She agrees that the plant trend started on social media around 2015. She also compares it with what is happening in Prague. She mentioned that Prague started to like plants more and more around 2017, where many small shops with house plants started to emerge.

Anicka (@kolikkytekjemockytek)

Anicka is a plant lover from Prague who is interested in collecting rare species, especially aroids and hoyas. Aroids are plants that belong to the Araceae family, and they can be well recognized by small flowers and big leaves. She said that she bought many plants because she saw them on other people's profiles. She noticed that this trend started in the last few years in the USA and got to the Czechia bit later. She further noticed that many new plant shops started just because of this trend and e-shops followed too. It is not so uncommon to order a plant online and get it delivered a few days later to your doorsteps. As a supporter of rare plant species, she believes that there is a gap in the market that needs to be filled. At the moment, it's almost impossible to get rare species of plants in Czechia, and many people are afraid to import them from Indonesia or Thailand. She believes that plant shops with rare plants would be a fantastic business opportunity in the near future. She herself is a part of the plant lovers community from April of 2019. She is an owner of Instagram accounts with more than six hundred followers and growing daily. She said that there are many reasons why she started this new social media hobby. Firstly, she just wanted to share her passion for plants with other people with similar interests while accomplishing her new year resolution of starting something new and exciting in her life. Secondly, she is a social manager, and she took this opportunity as a training ground for her career path. She also mentioned that this has positive mental results. She believes it is "a resting place when I need to turn off everything else and just disappear into another world filled with greenery and nice people". She later describes, "It (plants) brings people together. Many of those who love plants and have lots of them are

introverts, and sharing plants online makes it easier to connect with people without having to go through awkward small talks. Plant Lovers have a common topic instantly to talk about!”

She noticed the trend of Urban Jungle, and she shared her opinion as a plant influencer. She explains: “I think there are many reasons why people find plants so pretty and want to dive into building their own jungles.

1) It is pretty. It just is. It makes people feel nice and happy, and the greenery has a positive impact on peoples' minds.

2) It's photogenic! Every plant has the potential to become an Instagram celebrity. So it brings you two things - the happiness of owning a plant and happiness of sharing it online and getting likes and comments.”

She also thinks that plants are not a burden and not a big responsibility, “a lot less than pets or kids”. She then added, “Yeah, it might be sad when a plant dies, but it just isn't the same as when a person or a pet dies.”. She believes that her family sparks interest for plants in her. She mentioned that she remembers times when her grandmother was showing her new plants to her mother or when she was planting peppers in her uncle’s garden. Her first plant was a coffee plant that she received from her mother when she moved to her new flat. From that time, she was doing more and more research about plants and kept buying new ones too. She believes that the holy grail and must-have plant for every plant lover are the Monestera. When we talked about the trend of plant parents, she explains, “They're my hobby, not my pets or children. I also don't give my plants names, because I don't want to get too emotionally attached to them” She later mentioned that she enjoys term plant porn and that she believes it's a good name for the phenomena.

Cat Chen (@walkingcat)

Cat Chen is a Staghorn ferns lover from Tainan, Taiwan. His account is filled with pictures of what he loves the most, the family and plants. His love for plants started around November 2017, where he bought his first plant, an air plant, which he saw on his friend's Instagram account. He was delighted that after half a year, the plant was still healthy and growing well, which boosted his confidence. With his newly gained confidence, he decided to buy a new plant. He was attracted to a Staghorn fern that he saw in a window of the coffee shop he was passing by. He decided that he wanted to get it. May 2019 is the day he got his first Staghorn fern. He mentioned that he is very influenced by posts of other people on social media when it comes to plants. He has a few favorite Instagram personalities from the plant lovers community that he follows. He does not want to have a special dedicated account for his plants because his account is for recording his daily life, and plants are part of his daily life. Mr. Chen is a Staghorn ferns collector, but many of the rare pieces are very expensive. He set up his budget for plants, and he tried not to exceed his limits while buying a new plant. He also mentions that most of his plants have been raised from seedlings, and he said, "watching them grow better and more beautiful, there will be a full sense of achievement. Take pictures of them and record their growth. This process is actually quite stress relief and healing!". Mr. Chen answered that Urban Jungle style is known as well in Taiwan, but unfortunately, his room is not suitable for creating his own Urban Jungle, so he can only appreciate the pictures of other people embracing this design.

Plant parenthood

Some plant lovers call themselves plant parents, and this plant parenthood is also part of the houseplant trend. Instagram hashtag #plantparenthood has over 500 000 posts. There are also some similar hashtags, like #plantdad and #plantmom. Some plant parents are millennials, living in a rental apartment in the urban, not available for pets or kids, financially or otherwise.[42]

With many millennials delaying parenthood, the plant parents name, and talk to their plants. Plants have become the new pets, to fulfill the desire to connect to nature and the blossoming healthy lifestyle movement.[43] The plant parenthood is also a social media trend with real-life benefits. [44] For them, they also think that plants foster a sense of pride and accomplishment.

So why they want to be a plant parent? Or what makes people want to have a pet? Traditionally, there are many factors that might relate to owning a pet, like dogs and cats. Other than having a long-term companion in the family, owning a pet can have even health benefits.[45] Having pets can increase chances to exercise, get outside, and socialize. Pets can help manage loneliness and depression by giving us companionship. Most important can be constant attention. Many of the discussed reasons for owning a pet are similar to owning a plant. The plant can give some companionship, feeling of responsibility. It is necessary to take care of a pet and let him grow in a pleasant environment. Many plants have different species that can be rare and more expensive.

However, what makes a person choose plants instead of a pet, or even better, what are the advantages of having plants compared to a pet? The dynamic lifestyle of young people can be a big disadvantage while owning a pet. Many young people are traveling, moving for work, and school, and keeping pets around can be almost impossible with their living situations. Most of the young people that used to own a pet would leave them with their family and continue with their lives. Busy schedules and shared living conditions work against owning a pet. Tough financial

situations might impact owning a pet too. Many young people cannot afford to own a pet exactly because of these mentioned issues. Owning a plant can seem like a good option that will get rid of the most severe disadvantages of pets. Many plants are relatively cheap and do not need high maintenance effort. We can water plants once per week and let her sit on the windowsill, and nothing bad will happen. We do not have to be afraid that plants will make a mess in the home while we will be away. We do not have to buy expensive food for them or go with walks every morning at 7 AM.

Meanwhile, plants are offering many similar benefits to pets. They can give us a feeling of company, make us more responsible, they help to create a more relaxing environment. They can have a positive effect on depression—no need to mention that plants are improving the air quality of our living environment. Bringing a small plant from a shop and taking good care of him and seeing him grow strong can bring us a strong feeling of satisfaction and fulfillment. Those feelings can imitate the feeling of success compared to looking at the growth of our offspring. Many young people might feel that they are not ready to have a child, but taking care of plants might help them show how capable they are. This feeling of joy and fulfillment might be very positive for the mental health of people and somehow addicting. Many plant lovers have many plants in their homes, and they say that seeing their plants grow gives them a feeling of success and so-called inner peace. Those feelings make them want to have more and more new plants, which is very important part of the plan porn culture.

#Plantporn

The introduction into #Plantporn

Like language, visual representations are shaped by cultural factors.[46] As for many subcultures, visual media are the primary way of promotion and communication. Thus, we can call this new plant porn phenomenon as a "visual subculture," which is first advanced by members of the Birmingham School of Cultural Studies. This new trend has a strong relationship with food porn culture. Plant porn could be thought as the branch of food porn phenomenon, like other hashtags: #skyporn, #cloudporn, #cameraporn, #cabinporn, #bikeporn, #woodporn, #architectureporn, #earthporn, etc.

According to the Oxford Dictionary of English, food porn means "images that portray food in a very appetizing or aesthetically appealing way".[47] Based on the opinion of 422 participants in the survey, the definition of plant porn means aesthetical images of plants. The pictures are unusually attractive and desirable foliage plants, including interiors with plants or any photographs with plants. This hashtag is mainly used on Instagram, and also on other social media like Reddit, Twitter, YouTube, and Tiktok.

Plant porn is not specific to social media platforms and could also be seen on blogs and online news. Moreover, as food porn, plant porn is also a global phenomenon. As a way of communication, the hashtags are beyond the language barriers. On Instagram, #plantporn has over 260 000 posts till the end of April 2020. There are similar hashtags which also been used for these pictures: #plantaddict, #plantoftheday, #plantsofinsta, #plantlover, #plantparenthood, #houseplantclub, #plantlife, #plantnerd, #crazyplantpeople, #instaplant, etc.

One of the earliest usages of plant porn on websites is in November 2010, from website Design Milk.[48] This article is about the introduction of rare Pachycaul and Caudiciform Plants.

As for the online survey, 45.6% of participants heard about the hashtag #plantporn. Furthermore, from the open answer question, some

of the plant lovers think plant porn pictures as eye candies and their plant inspiration source. However, some people from the community do not agree with this #__porn trend on social media. Some voices said that this hashtag, along with some other plant hashtags, is used in a consumerism way. Some rare plants are overpriced like *Monstera obliqua* and *Philodendron spiritus sancti*.

These perfect foliage pictures are similar to the botanical illustrations of the eighteenth century and botanical photography in the nineteenth century. The difference is that in the era of mass images, the plant porn pictures are rapidly produced and spread. In March 2020, there are 14023 photographs on Instagram, hashtagged with #plantporn. To fully understand the roots of plant pictures, we have to look back its brief history.

The brief history of plant images

Before the photography era, plants have already been on this world way more before humans, and many images of them. The images we can find nowadays are from pictures of the ancient ferns kept in the fossils to pieces of plants perceived in the amber. History is feeding us with illustrations and pictures of plants from way before humankind was walking on the surface of this planet. Their representations of the plants were evolving during history. Ancient civilization was using floral and natural patterns to flourish the items of their daily use. We can see the heavy use of flower and plant patterns beautifying the Greek pottery products or further in future Aztecs used flower inspired patterns for traditional tribal tattoos.

One of the oldest recognizable plant pictures is the picture drawn by an anonymous creator as part of a mural in a house built on the Greek island of Santorini sometime before 1600 BCE. *Lilium chalcedonicum* portraits the fly that is being swallowed between long-stemmed red flowers. This picture places them among the oldest pictures of recognizable plants currently known – they predate ancient Egyptian

images of plants by around 300 years. They may mark the early origin of botanical art.

The natural need to capture plants evolved when people found out about the practical effects of plants. From the people who started to grow vegetables to the doctors using plants to heal regular health problems. The need for documenting plants was developing and increasing in time.[49]

Thus, Botanical illustrations started to be used both for science and art. Many cultures began to create their herbals and pharmacopeia, which included the depiction of plants. Those books were intended to assist the identification of a species, usually with some medicinal purpose.

Herbal is a book holding the names and descriptions of plants. The information usually accompanied this on their medicinal, culinary, aromatic, or magical powers. An average herbal may also classify the plants. Herbals were frequently illustrated to help plant classification.

Herbals were between the primary literature written in Ancient Egypt, China, India, and Europe. The very first printed herbal in Europe with woodcut drawings, the Puch der Natur of Konrad of Megenberg, emerged in 1475. The low printing quality of early attempts presents some difficulties in the process of identifying the plants. At this time, the need for a profession of botanical illustrator began to emerge. The eighteenth-century became significant in advances in the printing processes, and the illustrations became more accurate in colour and detail.

With the increasing interest of botanists, gardeners, and natural historians, the market for botanical illustrations started to widen. The illustrations became more accessible and appealing to the general reader. The field guides, Floras, catalogues, and magazines produced since this time have continued to include illustrations. The development of photographic plates has not made illustration out-of-date, despite the improvements in printing quality. A botanical illustrator can create a compromise of accuracy and the inclusion of the face and reverse of the features such as leaves. It can also bring attention to the details of sections that can be given at a magnified scale.[50]

Although the illustration was still popular, plant photography started to evolve by itself. By comparison, the technology of photography was

relatively new progress, but like botanical illustration, it also had developed. Since its origins in the early 1800s, photographs had focused on plants as the subject. Botanical artists also started to work direct from dried pressed herbarium material and use photographs as visual aids.[51]

Cyanotypes and "sun pictures" were the most initial types, pre-dating the use of the camera. The methods are arranging the plant parts on light-sensitive materials, and the first photographic botanical works were done.[52] The first book produced entirely by photographic methods is *British Algae - cyanotype impressions*, published in October 1843, by British photographer Anna Atkins (1799-1871). It was a botanical work consisted of over 200 plates of seaweeds, reproduced by the cyanotype (blueprint) process. The first photograms or 'photogenic drawings' of William Henry Fox Talbot(1800-1877) were images of flowers and leaves, both fresh and dried herbarium material. Some of them were included in his photobook, *The Pencil of Nature*, published in six installments between 1844 and 1846(see fig. 9).



fig. 9 Plate VII, "The Pencil of Nature", fascicle 2, by Fox Talbot, source: The British Library, 29 January 1845.

Furthermore, John Dillwyn Llewellyn (1810-1882) was also an enthusiastic photographic experimenter at this time. He used both Fox Talbot's techniques and late daguerreotypes. Several of Llewellyn's persevering early photographs show plants, and Fox Talbot regarded him

as the first botanical photographer. In fig. 10, there are blooming Hyacinth and Geraniums close to Llewellyn, which are the most popular houseplants in Victorian times.[54] These portraits with houseplants from the early stage of photography time are the origins of the similar selfies with plants on Instagram.



fig. 10 Collodion glass negative of John Dillwyn Llewellyn, 1853 (downloaded from <https://museum.wales/media/34540/JDL-self-portrait.jpg>)

One of the other famous photographers was Charles Jones. He created a series of gelatin silver prints of vegetables, fruits, and flowers. Pictures were taken in isolation against a neutral background, which highlighted specific features of the subject. Dr. Dain L. Tasker used the X-ray process, called radiographs, to capture images of flowers. The photographs that he captures are some of the most impressive and unique pictures. The rendering of subtle tones and the semi-transparent internal structure of the plant creates a charming depiction of a flower. Many nowadays, famous photographers were giving their take on plant photography. The mindset about plant photography started to shift from only descriptive and informative value to the artistic. Photographers started to experiment with different techniques and ideas to give plant photography artistic value rather than information one.

With the development of photography technologies and their accessibility to the ordinary people, more plant enthusiasts owning cameras started to capture their love for plants via this medium. That

picture mostly held nostalgic value or was created to document the growth of their favorite plants. People were using pictures to show off their plant collections or to preserve memories.

In the early 2000s, social networks started to emerge. Many people brought their hobbies to the online world, like forums and blogs. People started to meet people with similar interests online, thus forming groups. Social media helped them communicate and share knowledge and passion. One of the shared media were the pictures. In the context of mass images, plant photography also started to become naturally more popular because of the impact of social media on our lives in this era. Many hobbies and interests that are being portrayed on social media help to attract newcomers and spark interests in many of the followers. Well, thought the composition of few plants in the newly designed living room might be very appealing to almost everyone. A tailored user experience that is being created by social media algorithms might push to our news feed more and more pictures of plants or other items that we might like. This is how social media influence can spark interest in being part of communities, like the online plant community. Part of plant photography nowadays is just a basic transfer of our hobbies and interest in today's world social media where they can be appreciated with the whole world.

Plant porn photographs and photo analysis via object detection

As a considerable part of the Instagram pictures, the style of plant photographs is still Instagramism, which is strongly influenced by the magazine Kinfolk and minimalist aesthetics, with increased brightness, contrast, saturation, and sharpness.[55] Alternatively, we can say that plant porn photographs are Instagramism in a green tone. For the convenient accessibility of digital cameras and smartphones, people are so easy to take close up or wide-angle photos of their plants. These photos can be divided into two parts: causal normal plant photos and designed Instagrammism plant photos. For causal normal plant photos, they are

usually foliage close up and causal plant pictures. However, for designed plant photos, there are strongly staged elements like commercial photography and fashion photography: using high contrast and geometric composition that flatten the shapes and space and highlight the objects. Over these years, people are already trained to take pictures that are efficient to spread and communicate information.

Furthermore, there are several typical styles:

one single plant or several plants put on furniture against the pure colored background, which usually is light-colored (see fig. 11). The hashtag #plantshelf has around 30 000 posts, which are the inspirations for plant lovers and main spaces for plants because of the limited apartment space.



fig. 11 Screenshot of #plantshelf on Instagram

One single plant is held in one hand against a pure colored background (see fig. 12). There is also a typical style of Instagram photos.

Plants arrangement as selfie accessories or background (see fig. 13). One of the typical representative Instagram accounts is Boyswithplants, which has around 180 000 followers and showcases the male body and plants.

After long-term observation, I find out there is plenty amount of plant porn photographs with the existence of the human body, like portraits or

hands (see fig. 12 and fig. 13). To explore more about this, I have decided to use artificial intelligence and object detection frameworks.



fig. 12 Screenshot from Instagram, photo by pastazanum.papi



fig. 13 Screenshot of Instagram@Boyswithplants

The main idea is to gather enough pictures and feed them into the object detection software with the idea to find out if the average #plantporn picture includes a person or just plants. Although #plantporn is not among the most popular plant hashtags on Instagram, these pictures tagged #plantporn usually contain several of the most popular

plant hashtags. So #plantporn is the subset of the most plant porn pictures.

To do so, we first need enough data, which we can run the detection. Using the Python and Instaloader module, I was able to download over 120 000 pictures, which included hashtag #plantporn. Pictures are in the time range from 14th April up to the beginning of the year 2019. By the way, I have downloaded even a couple of hundred pictures from the year 2012 till 2018 when the hashtag just firstly started. The very first picture that I managed to find with this specific hashtag is the picture on the fig. 14.



fig. 14 First #plantporn photo on Instagram

This picture that was posted on profile (https://www.instagram.com/p/Ka8kWAte_m) at 5.9.2012 at 11:30 PM showing the frozen stem of a plant is accompanied by the array of hashtags (#frost #ice #plant #green #white #blue #closeup #instadaily #winter #battersea #london #plant #nature #focus #nature #naturephotography #focus #naturelovers #macrophotography #macro #flowers #flowerstagram #plantpower #plantsofinstagram #plantlove #plantpower #plantporn #leafy #nature_photo). We might assume that this picture is between a very first picture with a plantporn hashtag posted on Instagram. We can see in this picture that the trend of plant porn started to evolve in time, and that average plantporn picture nowadays looks different. I have taken the last 20 000 pictures that were posted

between February and March of the year 2020 and run object detection on them. With this approach, we should get the most recent data on plant porn posts on Instagram.

For object detection, I have used the Python and ImageAI library. Using Tensorflow, OpenCV, and Keras accompanied by ImageAI, I was able to run the object recognition on the set of 20 000 pictures. For the dataset, I have been using the COCO dataset "resnet50_coco_best_v2.0.1.h5". This dataset had the ability to detect people and plants as well. I have run the script with the purpose of detecting the people and plants in the picture. The average detection example of the picture can be seen in fig. 15.

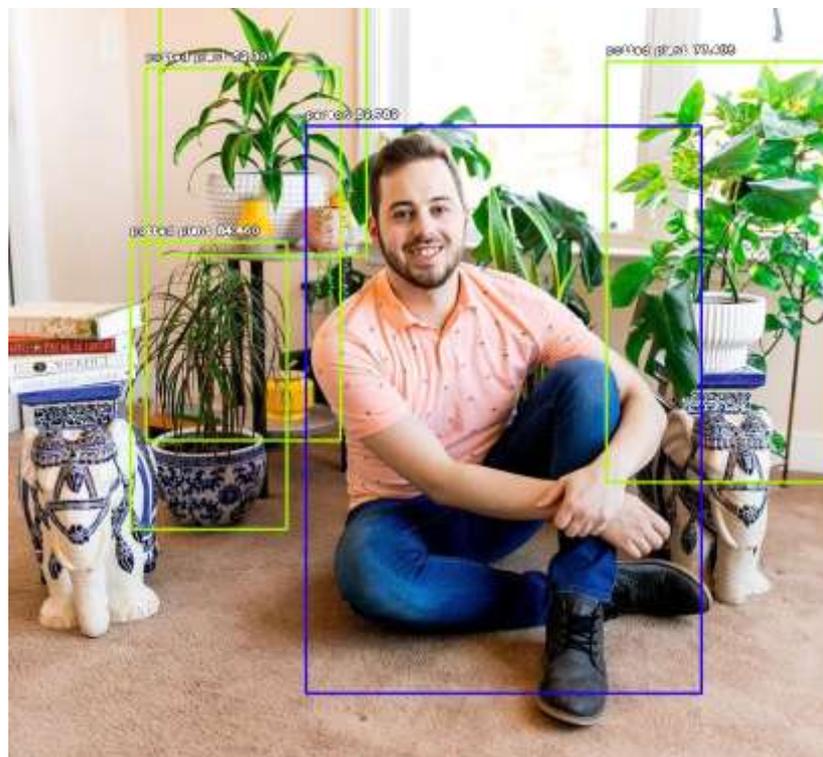


fig. 15 Example of object detection, unknown author

As we can see from the picture above, the script was able to detect multiple potted plants and a person.

The results after running this on our set of pictures:

Execution time: 10:04:46.779707 hours

The number of processed pictures: 19999

Number of detected pictures: 8200

Number of undetected pictures: 11799

Number of detected people on pictures: 2979

Number of detected plants on pictures: 9996

The script was running over ten hours and detected objects on 8200 pictures from 20 000 pictures. This is caused by the detection capabilities of the dataset. The dataset is not trained on a specific picture from Instagram. To increase the number of detected pictures, I would have to create and label my own dataset from Instagram, which might take many months and is time-consuming. I have decided to pick only pictures that were successfully detected to portrait correct information and count the number of occurrences of people and plants on those pictures.

From the set of detected 8200 pictures, we can see that there are 2979 people or body parts on them, which represents 36.33%. There were 9996 plants on those pictures which represent 1.219 plants per one picture. With those results, we can tell that there is usually more than one plant in the picture. If we count that the detection might not be accurately detecting all the plants, we can imagine that the percentage of the plants in the picture is higher, which would mean that pictures consist of multiple pictures of plants on them.

From the concluded statistical research, 36.33% of pictures included a people in them. This number is higher than I expected, though the number is not accurate because of detection capabilities. This number also prove the social function of houseplants, even though in the survey only 3.8% of the participants admitted this.

The pictures of hands with plants are anti-selfie, which means a photo showing a person' s body but not her/his face.[56]

These pictures bring the viewers a first-person viewpoint and a third-person narration, like in literature or in video games, when the virtual camera is positioned behind the character. This brings both the image

creators and the viewer the feeling of role-playing. Plants as portrait arrangement accessories or backgrounds can be seen in the early stages of photography, as seen on Llewellyn's portrait(see fig. 10) and in the Victorian fern fever era (see fig. 16).



fig. 16 Remade portriat from Pteridomania, by Florent Basiletti (downloaded from https://www.instagram.com/p/B_eQJXMloTF/).

The concept of self is also challenged and changed by the new possibilities in the digital world. Whether the plant lovers in front of or in the backside of the pictures, they are building an extend self and digital identity on their plant social accounts. In this time, the boundaries between online and offline, and body and technology are blurred.[57]

The plant consumers are constructing the object of desire. The extended self consists of the plants, which are the plant lovers most emotionally attached to, and it is a concrete representation of the abstract self to themselves and others.[58]

Conclusion

From the last chapters, we found out about the history of gardening from different cultures, the development of houseplants and the new plant trends of the 21st century across the world. We also found out more about the online plant community in the 21st century from the survey data and in-depth interviews. Houseplants have a long history and rich tradition, and the Millennials also have shown their fascination with houseplants in recent years. The reasons for the fascination are practical functionality and the psychological benefits of houseplants and the influence of social media. Judging from the results of the conducted survey, the core members of the online plant community are female millennials. There might be a new trend between the younger male generation born after 2000, which will cultivate this hobby. Furthermore, some plant lovers at this time, have the parenthood relationship with their plants.

When the plant lovers community is exposed to the mass image era, here comes the fascination of house plant pictures—plant porn subculture.

By tracing back the history of plant images and discussing the characters of plant porn photographs, we have more understanding of this new cultural phenomenon. For now, we cannot say this phenomenon will develop like Orchidelirium or Pteridomania in the nineteenth century. However, from the data and the growing trend, the fascination of houseplants seems just starting globally, and no signs show it will drop soon. Even though the adverse effects of this trend need to be discussed, the positive effects are apparent. The plant lifestyle helps urban citizens, both psychically and psychologically. Furthermore, the rare plant collectors help the rare endangered species survive under the situation of climate change and destroyed rainforests.

For the limits of the author's ability and time, there is some possible future work on this thesis. I hope I will have the chance to have a more scientific way of conducting a survey, more interviewee samples, and improved detection capabilities of an artificial intelligence image analysis to go further. For further search, there is plenty of space to discuss the

meaning of the mass image of plant photographs—plant porn, and the impact on individuals, culture and society.

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Appendix A

Online survey: #plantporn--indoor plants fascination on social media

Hey plant lovers and parents, I am a photography student (FAMU, Prague), writing my thesis on indoor plants fascination on social media. I really appreciate your help. Thank you so much! 😊 Please follow me on Instagram@plant_prn_addict

1. 🌿 When did you get your first indoor plants?
 - a) several months ago
 - b) around one year ago
 - c) around two year ago
 - d) more than two years ago

2. 🍀 How many plants do you have?
 - a) less than 5
 - b) 5-20
 - c) 20+
 - d) 100+
 - e) I don't count

3. 🌱 What is your motivation for owning indoor plants?
 - a) hobby
 - b) enjoyment
 - c) decoration
 - d) calming and stress relief
 - e) improvement of indoor microclimate (air quality)
 - f) social media presence
 - g) others:

4. 🍄 What inspired you to own plants?
 - a) surrounding people: family, friends
 - b) internet: Blogs, Instagram
 - c) others:

5. 🌴 What is your age?
 - a) below 20
 - b) 20-30
 - c) 30-40
 - d) 40+

6. 🗺️ What is your gender?
 - a) Female
 - b) Male
 - c) Other

7. 🌸 Do you follow any plant related content on social media?
 - a) Yes
 - b) No

8. 🗣️ If yes, what is your role in online plant lover community?
 - a) lurker
 - b) content creator
 - c) other:

9. 🍌 Have you ever heard about #UrbanJungle?
 - a) Yes
 - b) No

10. 🌳 What do you think about "Urban Jungle" and what does it mean to you? (optional)

11. 🌱 Have you ever heard about #PlantPorn?

a) Yes

b) No

12. 🌸 What do you think when you hear #PlantPorn? What does #PlantPorn mean to you? (optional)

Thank you so much for your kind help. If you have anything else want to share, please write down. 😊❤️