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Phytodecoration of interiors of the government house of Ukraine: analysis and suggestions

Oleksandra Strashok*, Anastasiia Morozko

National University of Life and Environmental Sciences of Ukraine
03041, 15 Heroiv Oborony Str., Kyiv, Ukraine

Abstract. The study presents the results of studies of bioaesthetic characteristics of decorative elements of phytodesign of office interiors. It is established that the phytodecoration of interiors is an important component of creating a comfortable environment for employees of various institutions. Modernisation of phytodesign elements was conducted for the premises of the Government House of Ukraine, based on the results of surveys and analysis of the species composition of tropical and subtropical plants cultivated in the premises of this institution. The collection and primary processing of information were conducted using the route survey method. Visualisations of model phytocompositions were formed based on specialised Real Time Landscaping Architect software. During the research, the existing range of tropical and subtropical plants that were used for phytodecoration of the interiors of the Government House of Ukraine was investigated, and its expansion was proposed. Groups of plants for functional and aesthetic purposes in the premises are analysed and project proposals are developed on their basis to improve the decorative nature of the interiors of the Government House of Ukraine. It is established that the decoration of premises involving phytocompositions on the territory of the object under study appeared only in 2003, while compositions of live plants replaced the use of artificial flowers. It was determined that the range of decorative deciduous and beautifully flowering plants that were attracted for phytodecoration of the interiors of the Government House of Ukraine includes 22 species. Considering the specific features of the internal layout of the building, seven project proposals of phytocompositions were developed for decorating recreation rooms, entrance and transit zones, meeting rooms, press and journalism halls, and the Small Hall of the Government House of Ukraine. It is proposed to expand the range of decorative deciduous and beautifully flowering plants into seven species, namely representatives of the *Araliaceae* Juss., *Araceae* Juss., *Arecaceae* Bercht. & J. Presl., *Begoniaceae* C. Agardh, *Campanulaceae* Juss., *Nephrolepisaceae* Pic. Serm. families, considering their aesthetic and utilitarian functions, and optimal options for placing phytocompositions, model phytocompositions for decorating the interiors of the Government House of Ukraine were developed on their basis

Keywords: enclosed space, public buildings, project proposals, phytodesign, phytoergonomics, phytocomposition

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*Corresponding author

Introduction

Phytodecoration is a new area in the formation of the architectural environment through a harmonious combination of vegetation with the object world. Currently, the use of plants for arranging the interiors of various premises is explained by the need for humans to be closer to nature due to the large-scale urbanisation of cities and local technogenic environmental pollution. Successful solution of these problems requires a comprehensive approach to the wide possibilities of applying the beneficial properties of plants: phytoncidotherapy, colour therapy, aesthetic therapy, aromatherapy, and many other functions.

A person spends most of their life in a closed environment, so isolation from nature should be compensated by creating elements of flora and phytodesign in the premises, which help to increase the artistic expressiveness of the internal space, improve its functional organisation, and contribute to improving the sanitary and hygienic parameters of the air.

The level of comfort of a closed environment is created by the optimal combination for a person of a complex of important indicators that ensure the performance of two main functions: aesthetic – harmony, integrity, compliance with the environment, style, trends, and utilitarian – temperature, cleanliness, humidity, and air speed, sound and noise insulation. Phytodecoration ensures the fulfilment of these parameters and solves several issues related to the performance of these functions.

The scientific approach to indoor landscaping involves combining the aesthetic perception of colour, texture, and shape of flowers and leaves of plants with another important feature – phytoncidal properties, which is relevant, because individual elements of the interior and decor with paintwork, plastic products can emit poisons and toxins. In addition, the air in any room of the building contains fungal spores, pathogenic microorganisms, pollen, soot microparticles, and various chemical compounds. Therefore, the rational selection of the range of plants for the phytodesign of a closed environment solves a number of tasks related to both a complex aesthetic nature and a phytosanitary plan.

The use of the principles of functional and decorative gardening in the organisation of interiors of administrative buildings contributes to the visual harmonisation of the environment, optimisation of its functional organisation and improvement of environmental indicators. This, in turn, will reduce the fatigue of a person in this environment, increase their performance and have a positive effect on their physical and psychological state.

Phytodecoration of administrative building interiors – a specific area of phytodesign, so now it is relevant to use elements of nature in the design of closed architectural

compositions of interiors of the Government House of Ukraine.

One of the most important issues of our time is the environmental safety and protection of humans, the environment of their life, and existence in the conditions of rapid development of urbanised territories and the expansion of industrial complexes. The issue of indoor landscaping interested scientists back in the late 1970s. In 1981, D. Grodzinsky defined phytodesign and outlined the theoretical basis for the use of plants in closed systems, and developed technological aspects of the formation of phytocompositions (Grodzinsky, 1986).

The practical application of the principles of phytodesign in interiors and the study of their aesthetic and functional substantiality was conducted by V. Sniezhko, V. Pushkar, N. Kryzhanivska, N. Chhartishvili, N. Mkhitarian, M. Hunter, and D. Khesayon. Features of phytodesign of premises were investigated by L. Mashinsky, O. Stepanenko. Many papers were devoted to determining the decorative role of plants and investigating their artistic and aesthetic aspects in phytodesign (Kryvonos, 2019; Kuznetsova & Stepanyuk, 2013; Hnatyuk & Shepelyuk, 2019), the use of ornamental plants and current trends in phytodesign of interiors (Kosenko, Hrabovyi, Opalko, Muzyka & Opalko, 2020; Cetti, 2014).

The purpose of the study is to analyse the available phytocomposition solutions for interiors in the premises of the Government House of Ukraine and, based on them, provide proposals for the selection of an assortment of plants for creating new compositions intended for decorating the spaces of administrative buildings.

Materials and Methods

During the study, the following methods and techniques were used: route survey – collection and primary processing of material; assessment of plant decorative properties. The specialised Real Time Landscaping Architect Software was used to create visualisations of project proposals.

Results and Discussion

In the interior design of public administrative buildings, ideas of rationalism and functionality prevail over aesthetic appearance, because, considering the specific features of working in such types of premises, first of all, attention is paid to the problems of air conditioning, insulation, and noise absorption. It is established that in the 2000s, the first phytocompositions in the interiors of the Government House of Ukraine were formed from artificial flowers (Saakov, 1983), which only partially ensured the performance of aesthetic functions. Only in 2003 did fresh flowers appear, decorating the general appearance of the premises (Fig. 1).



Figure 1. General view of the meeting room of the Government House of Ukraine before reconstruction (<http://inpress.ua/ru/economics/14281-zasedanie-kabmina-kommunalnye-tarify-ponizit-chislo-turistov-povysit-osoboe-vnimanie-gorlovke>)

In 2004, the reconstruction of the halls of the Government House of Ukraine was completed, and specialists from the Department of landscaping and phytodecoration formed the

first phytocompositions (Fig. 2). The first phytocompositions of the great hall of the Club of the Cabinet of Ministers of Ukraine were formed from *Spathiphyllum wallisii* Regel plants (Fig. 3).



Figure 2. Official meeting hall of the Government House of Ukraine after reconstruction (<http://www.center.net.ua/news/396>)



Figure 3. General view of the great hall of the Club of the Cabinet of Ministers of Ukraine (<http://www.center.net.ua/news/396>)

The main focus of phytodecoration of the interior of the Club of the Cabinet of Ministers of Ukraine hall before

the reconstruction was the composition of *S. wallisii* and *Hedera helix* L. plants (Fig. 4).



Figure 4. General view of the Club of the Cabinet of Ministers of Ukraine hall before the reconstruction (<http://www.center.net.ua/news/396>)

Modern phytocompositions of the premises of the Government House of Ukraine present a diverse range of sub-tropical and tropical plants – *Aglaonema commutatum* Schott, *Asparagus aethiopicus* L., *Epipremnum aureum* (Linden & André) G. S. Bunting, *Dracaena deremensis* Engl., *H. helix*, *Crassula arborescens* (Mill.) Willd., *Clivia nobilis* Lindl., *Monstera deliciosa* Liebm., *S. wallisii*, *Schlumbergera truncata* (Haw.)

Moran, *Zamioculcas zamiifolia* (Lodd.) Engl., *Saintpaulia grandifolia* B. L. Burt, *Yucca gigantea* Lem., *Ficus benjamina* L., *Oxalis acetosella* L., *Oxalis hedysaroides* Kunth., *Nolina longifolia* (Karw. ExSchult. & Schult.f.) Hemsl., *Hibiscus rosa-sinensis* L., *Codiaeum variegatum* (L.) Rumph. ex A. Juss., *Chlorophytum comosum* (Thunb.) Jacques, *Dieffenbachia seguine* (Jacq.) Schott and species of the genus *Phalaenopsis* Blume (Fig. 5).



Figure 5. General view of the Club Cabinet of Ministers of Ukraine hall after Reconstruction (<http://rian.com.ua/columnist/20151024/375735012.html>)

The aesthetic design of free space in the premises is created through phytodesign of a closed environment, which allows for achieving maximum comfort and cosiness.

Modern phytocompositions, techniques, and means of landscaping for the organisation and visual harmonisation of the interiors of the Government House of Ukraine were proposed, which will increase aesthetics and improve the sanitary and hygienic indicators of the environment by introducing natural outlines and properties. The species composition of plants that were used for phytodecoration of the premises of the Government House of Ukraine is analysed, and it is established that it includes 22 species of decorative deciduous and flowering plants. It was proposed to expand it by involving some representatives of *Araliaceae*, *Araceae*, *Arecaceae*, *Begoniaceae*, *Campanulaceae*, *Nephrolepisaceae* families, and on their basis, project proposals for phytodecoration of individual premises of the Government House of Ukraine were developed.

Modern methods of phytodesign consist in the fact that the use of plants in residential premises and offices helps to form conditions close to the natural environment, which will positively affect both the nature of human perception of each composition individually and in general on the surrounding space (Kniazeva, 2013). Plants that are used for indoor gardening should be resistant to

environmental conditions and be harmoniously combined with the overall style of interior design.

Notably, for fragmentary phytodecoration of interior interiors, it is advisable to use solitary plants or groups of them. Since plants attract special attention, it is necessary to choose a place for them, considering the lighting, temperature, and humidity of the air, its contamination with harmful substances (Popova, 2012). In addition, plants must meet the conditions of the room in terms of size, structure, silhouette, pattern, and colour of leaves. For this, big plants with large leaves are used (representatives of the *Arecaceae* family and *Monstera* Adans., *Aralia* L., *Philodendron* Schott, *Ficus* L., *Cordyline* Comm. Ex R. Br., *Agave* L., *Sansevieria* Thunb.) genera, supplemented with smaller species (*Aspidistra* Ker Gawl., *Aglaonema* Schott, *Pilea* Lindl., *Chlorophytum* Ker Gawl., *Oxalis* L., *Begonia* L. *Hedera* L. et al.) (Porubynovskaia, 1974). Planters and containers in which plants are grown should be in harmony with the architecture of a particular room in shape, size, color, material, and it is advisable to decorate the top layer of soil with moss, pebbles, expanded clay, sand, or ground cover plants (Artiushyn, 1982; Orlova, 2011).

A phytocomposition in the Government House of Ukraine in the Small hall (Fig. 6) was designed. The range consists of plants *C. comosum* that is distinguished by its

decorative and phytoergonomics function, and is arranged according to habit with all other plants. *A. commutatum* creates a vertical axis of the future phytocomposition, is quite undemanding to the level of lighting and does not require frequent watering. *Nephrolepis cordifolia* (L.) C. Presl. will adorn the compositions with its splendour, due to the shape of openwork leaves. In the future, this composition

will be located in the centre of the Small Hall of the Government House of Ukraine. This room has a low level of lighting, so an assortment of plants that are undemanding to the level of insolation were selected (Rak, 2009). It is believed that such a highly decorative phytocomposition will complement the design of the Small Hall of the Government House of Ukraine.



Figure 6. Project proposal for phytodecoration of the Small Hall of the Government House of Ukraine:
1 – *A. commutatum*, 2 – *C. Comosum*, 3 – *N. cordifolia*

Phytocomposition for the design of the meeting room in the club premises of the Government House of Ukraine (Fig. 7) is simple in its assortment, undemanding to light, watering, decorative, and does not require careful maintenance (Smyrnova, 2015). The phytocomposition

will be formed in rectangular modules in a regular style. The range includes the following species: *S. wallisii* and *N. cordifolia*. Plants have phytoncidal properties, and different shades of green will have a positive effect on the emotional state of employees.



Figure 7. Project proposal for phytodecoration of the Club of the Government House of Ukraine meeting room:
1 – *S. wallisii*, 2 – *N. sordifolia*

Phytocompositions for the entrance areas of the Government House of Ukraine were also designed (Fig. 8). Undemanding plants that grow well in conditions of limited insolation were offered to create a phytocomposition (Fomyna, 2015): *N. sordifolia* and *Araceae* Juss. family

representatives – *Anthurium andraeanum* Linden ex Andre, which, due to its unusual red bract bedspreads, will act as the main accents. These plants were determined to increase productivity, have a good impact on the environment, and are well adapted to indoor environments.



Figure 8. Phytodecoration project proposal of the entrance area of the Government House of Ukraine:
1 – *A. andraeanum*, 2 – *N. sordifolia*

A project proposal for the design of the press and journalism hall was developed (Fig. 9). It was formed based on gravel pallets, and the range is selected so that the agricultural equipment of phytocomposition care does not involve complex and frequent operations.

Undemanding plants that have phytoncidal properties and can positively affect the microclimate of the environment were selected to create it (Tsvetkova, 2015), – *Chamaedorea elegans* Mart., *S. wallisi*, *N. sordifolia* and *Begonia semperflorens* Link & Otto.



Figure 9. Project proposal for phytodecoration of the press and journalism hall of the Government House of Ukraine:
1 – *C. elegans*, 2 – *N. cordifolia*, 3 – *S. wallisii*, 4 – *B. semperflorens*

For well-lit rooms of the Government House of Ukraine, phytocompositions that are combined with *Schefflera actinophylla* (Endl.) Harms, which has an approximate columnar crown shape, and *B. semperflorens* were offered (Fig. 10). *Araliaceae* Juss. family representatives look

spectacular in indoor areas, their wide range and variety of structures, shapes, and colours of leaf blades emphasise and give uniqueness to the interior. *B. semperflorens* is distinguished by the red colours of flowers and bright green leaves (Shakhov, 2006).



Figure 10. Project proposal for phytodecoration of the recreation room of the Government House of Ukraine:
1 – *S. actinophylla*, 2 – *B. semperflorens*

Project proposals for transit premises were developed using another representative of the *Araliaceae* family – *H. helix* (Fig. 11). Evergreen woody vine in nature can reach 30 m in length and has a large number of cultivars with various decorative features (atypical shape and colour of leaves, the nature of the edge of the leaf blade) (Volkova, 2012). Flexible, branched ivy stems and numerous aerial roots-suckers are able, attaching to foreign objects, to lift and hold the plant at a height. The plant is shade-tolerant, so it will grow well in partial shade, near the window of

the northern part of the room, but cannot withstand direct sunlight (Hriunvald, 2006; Tsvetkova, 2011).

For the design of the entrance area of the Government House of Ukraine, monospecies compositions using lianas of the *Araliaceae* family (Fig. 11), and decorative deciduous and flowering plant species combined with it are proposed (Fig. 12). When creating such phytocompositions, *H. helix* plant shoots must be fixed on installed supports or frame structures, so that the desired shape and volume of the composition can be achieved.



Figure 11. Project proposals for phytodecoration of the premises of the Government House of Ukraine using *H. helix* plants

Rich, bright green leaves of *H. helix* have a refreshing colour and soothing character, capture, and absorb a substantial proportion of dust from the air. Scientists at the University of Dresden in 2009 reported on the high

efficiency of this plant in absorbing toluene, octane, formaldehyde, trichloroethylene, and benzene from the air, which helps to improve its quality characteristics in the room (Mayrand, Clergeau & Vergnes, 2018).

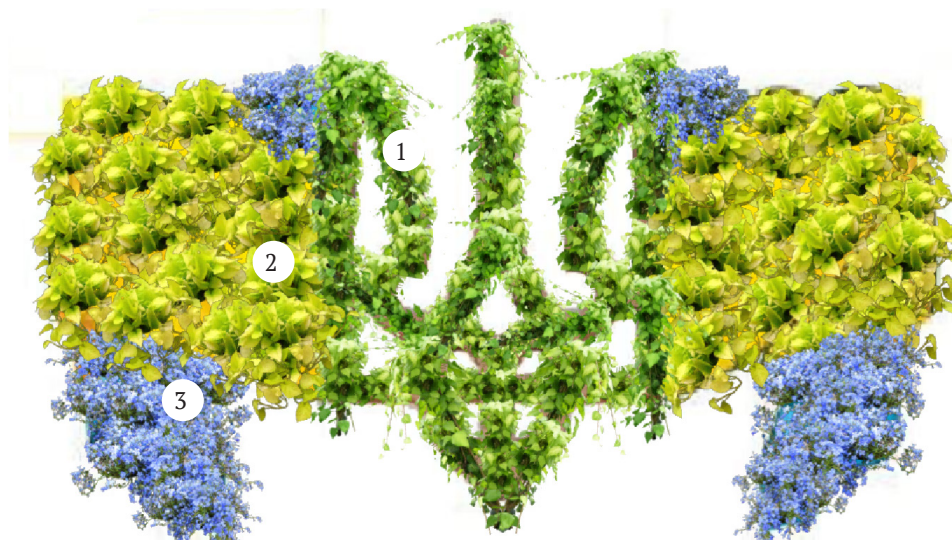


Figure 12. Project proposals for the stylisation of state symbols of Ukraine using ornamental plants:
1 – *H. helix*, 2 – *E. aureum* ‘Neon’, 3 – *Campanula isophylla* ‘Blue Bali’

Phytodesign of interiors involves aesthetic, artistic, and functional design of the overall appearance of the space, where ornamental plants play a substantial role, which, in turn, have a certain psychoemotional load, which can positively affect the mood and performance of a person. Thus, when choosing an assortment for harmonious phytocompositions, it is necessary to consider such components of their bioaesthetic characteristics as colour, contrast, dynamics, rhythm, proportion, scale, symmetry.

Conclusions

According to the results of the study, it was established that the first phytocompositions from live plants in the interiors of the Government House of Ukraine appeared in 2003,

which indicated the need for the formation of functional and decorative greenery.

The species composition of tropical and subtropical plants that are part of the phytocompositions of the interiors of the Government House of Ukraine includes 22 species of decorative deciduous and flowering plants. It was proposed to expand this range of highly decorative plants by attracting seven species of representatives of *Araliaceae*, *Araceae*, *Arecaceae*, *Begoniaceae*, *Campanulaceae*, *Nephrolepisaceae* families.

Considering the need to form a complete picture of interior decoration, seven model phytocompositions for decorating the entrance and transit zones, meeting rooms, press and journalism halls, Small hall, and separate rooms of the Government House of Ukraine were developed.

References

- [1] Artiushyn, L. F. (1982). *Floriculture*. Moscow: Knyga [in Russian].
- [2] Cetti, L. (2014). *Exquisite Book of Paper Flower Transformations: Playing with Size, Shape, and Color to Create Spectacular Paper Arrangements*. New York: Abrams.
- [3] Fomyina, Y. A. (2012). *Flowers in the house. Fitodesign for your health*. Moscow: Eksmo [in Russian].
- [4] Grodzinskiy, A. M. (1986). *Phytoncide in ergonomics*. Kyiv: Navukova dumka Publ. [in Russian].
- [5] Hnatyuk, L. R., & Shepelyuk, K. S. (2019). Use of phytodesign in the interior of office space. *Theory and practice of design*, 17, 31–39. <https://doi.org/10.18372/2415-8151.17.14344>
- [6] Hriunvald, G. (2006). *Houseplants: Features of growth in at home and in nature*. Saint Petersburg: Krystall [in Russian].
- [7] Kniazeva, T. P., & Kniazeva, D. V. (2013). *Houseplants*. Moscow: Olma Medya Hrupp [in Russian].
- [8] Kolesnykova, E. N. (2014). *Simple floriculture. Unpretentious houseplants*. Moscow: Fenyks [in Russian].

- [9] Kosenko, I. S., Hrabovyi, V. M., Opalko, O. A., Muzyka, H. I., & Opalko, A. I. (2020). Current trends in Green Urbanism and peculiarities of multifunctional complexes, hotels and offices greening. *Ukrainian Journal of Ecology*, 10 (1), 226–236. https://doi.org/10.15421/2020_36
- [10] Kostyna-Kassanelly, N. N. (2013). *Palm trees, cacti, ferns and other exotic houseplants*. Kharkiv: Klub semeinoho dosuha [in Russian].
- [11] Kryvonos, V. H. (2019). Formation of an aesthetic comfortable environment for public interiors by means of phytodesign. *Cultural heritage of Siberia*, 1 (27), 40–46 [in Russian].
- [12] Kutas, E. N. (1984). *Ecological and biological features of the life of plants in the conditions of interiors*. Minsk: Nauka i tekhnika [in Russian].
- [13] Kuznetsova, I. O., & Stepanyuk, T. O. (2013). Influence of main artistic means of composition on use of phytodesign in the interior. *Scientific Bulletin of NFTU of Ukraine*, 23 (18), 316–320 [in Ukrainian].
- [14] Mayrand, F., Clergeau, P., Vergnes, A., & Madre, F. (2018). Vertical Greening Systems as Habitat for Biodiversity. In *Nature Based Strategies for Urban and Building Sustainability* (pp. 227–237). Elsevier. <https://doi.org/10.1016/C2016-0-03181-9>
- [15] Official website Club CMU. Available at <http://www.center.net.ua/news/396>.
- [16] Official website CMU. Available at. <http://rian.com.ua/columnist/20151024/375735012.html>.
- [17] Official website of the Cabinet of Ministers of Ukraine. Available at <http://inpress.ua/ru/economics/14281-zasedanie-kabmina-kommunalnye-tarify-ponizit-chislo-turistov-povysit-osoboe-vnimanie-gorlovke>.
- [18] Orlova, T. F. (2011). *Floriculture*. Volgograd: NAA [in Russian].
- [19] Popova, G. R. (2012). *Your houseplants plants*. Moscow: Kladez-buks, Astrel [in Russian].
- [20] Porubynovskaia, G. V. (1974). *Decorative houseplants*. Moscow: Planeta [in Russian].
- [21] Rak, Y. (2009). *Encyclopedia of houseplants*. Moscow: Nyolla-Press [in Russian].
- [22] Saakov, S. G. (1983). *Greenhouse and houseplants and their care*. Lviv: Nauka [in Ukrainian].
- [23] Shakhov, V. V. (2006). *Begonias*. Moscow: Kladez-buks [in Russian].
- [24] Smyrnova, T. V. (2015). *Houseplants: monthly care calendar*. Moscow: Eksmo [in Russian].
- [25] Tsvetkova, M. V. (2005). *Floriculture: professional advice*. Moscow: Knyzhkyn Dom; Moscow: Eksmo [in Russian].
- [26] Tsvetkova, M. V. (2011). *1000 species of indoor plants. Floriculture from A to Z*. Kharkiv: Klub semeinoho dosuha [in Russian].

Фітодекорування інтер'єрів будинку уряду України: аналіз та пропозиції

Олександра Юріївна Страшок, Анастасія Петрівна Морозько

Національний університет біоресурсів і природокористування України
03041, вул. Героїв Оборони, 15, м. Київ, Україна

Анотація. У статті наведено результати досліджень біоестетичних характеристик декоративних елементів фітодизайну інтер'єрів офісних приміщень. Встановлено, що фітодекорування інтер'єрів є важливою компонентою формування комфортного середовища для працівників різних установ. Осучаснення елементів фітодизайну здійснювали для приміщень Будинку Уряду України, базуючись на результатах обстежень та аналізу видового складу тропічних і субтропічних рослин, що культивуються у приміщеннях цієї установи. Збирання та первинне оброблення інформації проводили за допомогою методу маршрутного обстеження. Візуалізації модельних фітокомпозицій формували на основі спеціалізованого програмного забезпечення Real Time Landscaping Architect. Під час досліджень вивчено наявний асортимент тропічних і субтропічних рослин, які були використані для фітодекорування інтер'єрів Будинку Уряду України, та запропоновано його розширення. Проаналізовано групи рослин за функціональним та естетичним призначенням у приміщеннях і розроблено на їх основі проектні пропозиції щодо підвищення декоративності інтер'єрів Будинку Уряду України. Встановлено, що декорування приміщень за участю фітокомпозицій на території досліджуваного об'єкту з'явилося лише у 2003 р., при цьому композиції із живих рослин замінили використання штучних квітів. Виявлено, що асортимент декоративно-листяних і красивооквітух рослин, які були залучені для фітодекорування інтер'єрів Будинку Уряду України, налічує 22 види. Зважаючи на специфіку внутрішнього планування будівлі, розроблено сім проектних пропозицій фітокомпозицій для декорування кімнат відпочинку, вхідної та транзитної зон, зали засідань, зали преси та журналістики і Малої зали Будинку Уряду України. Запропоновано розширення асортименту декоративно-листяних і красивооквітух рослин на сім видів, а саме представників родин *Araliaceae* Juss., *Araceae* Juss., *Arecaceae* Bercht. & J. Presl., *Begoniaceae* C. Agardh, *Campanulaceae* Juss., *Nephrolepisaceae* Pic. Serm., з урахуванням їхніх естетичних та утилітарних функцій, а також оптимальні варіанти розміщення фітокомпозицій і розроблено на їх основі модельні фітокомпозиції для декорування інтер'єрів Будинку Уряду України

Ключові слова: закритий простір, громадські будівлі, проектні пропозиції, фітодизайн, фітоергономіка, фітокомпозиція