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CURRENT TRENDS OF THE USE OF ECO-MATERIALS IN THE DESIGN OF LIGHT INDUSTRY PRODUCTS

The purpose. Analysis of the basic directions of eco-design; development of classifications of eco-materials; determination of perspectives of their use in the design of the handbags.

Methodology. The research is based on systematic analysis of eco-materials in clothes and in handbags, as well as on general methodology of clothes and accessories design. The methods of system-structural analysis and visual-analytical method are used at different stages of the research.

Results. The basic principles of eco-design have been studied, the classification of eco-materials has been developed, the tendencies of using eco-materials in the design of handbags have been determined, the trends of fashion have been analyzed and the collection of handbags made of cork material has been created. The use of eco-materials in the design of light industry products makes it possible to obtain new aesthetic properties, thereby opening new opportunities for the development of the fashion industry. The use of eco-materials promotes for the development of new constructive techniques by the designers, for the creation of the latest technologies in fashion industry; it makes it possible to diversify the artistic solution of the costume and to improve its expressiveness.

Scientific novelty. The regularities of formation of accessories collections in eco-style, as well as the basic hallmarks of style (color palette, accessories and furnishings) are determined.

Practical significance. The collection of eco-style handbags with the use of cork material, based on current fashion trends, is developed.

Keywords: eco-design, design of the handbags, cork material, eco-style, sustainable fashion.

Introduction. The issue of ecological design combines various industrial and academic sectors, including architecture, industrial design, applied ecology, philosophy, medicine, psychology, sociology, etc. In recent years, the concept of *eco-fashion* has become increasingly popular in Ukraine. Today, brands and consumers are changing their attitude to fashion and its fleeting nature. Minimization of wastes, conscious consumption and durable things – eco-design means all of this. Eco-friendly approach to design forms new culture of consumption, pattern of needs based on reduction of excess of products, and environmental literacy; purposefully changes the society's system of values with the help of artistic images of the objects of design; contributes to the diffusion of ecological design ideas and to the formation of ecological culture in society [1]. The relevance of this topic consists in the presentation of the

ways of preserving the environment, in the uncovering of the concept of conscious consumption and in the improvement of the ways of products creation without harm to society.

Analysis of previous researches. In the 21st century, the eco-direction has become a philosophy, and now the term *sustainability* means a long-term, sustainable design that takes into account people's needs, combines environmental and social-ethical responsibilities, environmental protection and social justice [1].

In the work [2], the authors highlight the ability of the *planet-society-economy* system to co-exist in a single context, which explains the meaning and value of the term *sustainability*. They reveal a philosophy of sustainability that aims to change the system of fashion industry and consumption. O.V. Budnikova notes that the problem of

greening of the consumption has led to the qualitative changes in design tasks: first, the improvement in the form and function; second, the reduction of excess of design products, the revision of materials and technologies, the formation of a new structure of needs. It is possible to reduce the consumption by extending the product life, by achieving the optimal balance between the cost of production of the product and its period of use, by refraining from non-reusable items (where it is appropriate and justified), giving preference to durable products of high-quality [3, p. 62]. In her book *Sustainable Fashion and Textiles: design journeys* [4], Kate Fletcher examines the field of fashion design and textiles. She analyses the key stages of the product life cycle: cultivation, extraction of the material, production, use and utilization. The author discloses the design approaches to the changes in the scope and the nature of the consumption, including the service design.

Niinimäki Kirsi's book *Sustainable fashion: New approaches* [5] presents sustainable fashion as an approach that covers future-oriented value, as transformational and re-directive design, which predicts the future, as design and business strategies, as an experimenter of the changes, as well as a rethinking of business thinking. In the article [6], the authors consider the concept of *eco-fashion*, analyze the life cycle of clothes and propose the ways of solving the problem of environmental friendliness in the fashion industry. The authors of the article [7] emphasize that it is important to take into account the product life cycle in the modern design; they also clarify the concept of *upcycling*, using modern brands as the examples.

Despite a number of studies in the field of eco-design, insufficient study of the problem of implementation of the concept of eco-design in the practice of production of clothes and accessories determines the feasibility and the relevance of this study.

Statement of the problem. The purpose of the work is to study the main trends of eco-design, the tendencies of using eco-materials in the design of handbags on the basis of modern world trends. In order to achieve the purpose, the following tasks should be solved: analysis of the modern fashion trends, research of the tendency of using eco-materials in accessories, research of existing eco-materials, ways of using eco-materials for the development of aesthetic and competitive products of light industry.

Results of the research. The basic principles of eco-design are the use of natural, rapidly renewable materials, the production of which does not adversely affect the environment, which are non-toxic, simple and can be safely recycled, and which can be reused with minimal environmental damage.

Quality is more important than quantity – it is a slogan that reflects *eco-fashion* [8]. This slogan to a certain extent summarizes the basic principles of slowdown in consumption of clothes and promotes for longer-lasting clothes. The idea of *eco-fashion* encourages consumers to think about the impact of the textile industry on the environment, slows down supply chains in order to reduce the number of sales seasons, promotes the production of quality clothes, etc. It is possible to identify three areas of the environmental approach, namely: *reducing* – careful use of natural and human resources; *reusing* and *upcycling* – reuse of finished products; and *recycling* – recycling of wastes and products in order to produce new ones [5 – 7].

One of the steps towards the conscious consumption is to give preference to eco-friendly fabrics and materials. Eco-style is the oldest and most natural style of clothes. Eco-friendly clothes are long dresses and skirts, sundresses, blouses, etc., made of natural fabrics: linen, cotton, nettles, etc. Eco-style colors embody nature: beige, brown, white, pastel colors, pale green, sky blue, the colors of grass, water, stones, trees, etc. The style is

characterized by large and medium-sized products, with straight or extended silhouette. The cut is usually one-piece or sewn in, the dividing lines are vertical and horizontal, the shaping elements are draperies, gores, etc. The style is characterized by a large number of structural and decorative elements, decoration with paintings, ruffles, embroidery, and so on.

Products and collections of such brands as ZARA, H&M, Nike, Holzweiler, etc. and of such designers as Stella McCartney, Issey Miyake, Ksenia Schnaider are made in eco-style.

The Holzweiler brand is specialized in the design of handmade knitwear products, made from textile wastes. Generation Z, in particular its awareness, curiosity and courage, was the inspiration for the new Spring-Summer 2020 collection (Figure 1, a). The basis of the collection is knitted cardigans, suits, oversize shirts, t-shirts and wraps. Macramé bags, panamas and flexible sunglasses are the additions to the clothes.

Ukrainian brand Ksenia Schnaider has been experimenting with recycled materials for a couple of years. In the brand's collections, the designer uses vintage jeans and sportswear to make clothes and accessories. She makes shorts, skirts, raincoats, jackets from jeans, and bombers, dresses and suits from sportswear. Recycled denim is always in her collections; also the brand has started to create clothes made from textile wastes (Figure 1, b) [15].

Issey Miyake, well-known for his sculptural designs and aesthetics *East Meets West*, produces the clothes from such material as recycled thread, which significantly reduces the brand's impact on environment (Figure 1, c). British designer Stella McCartney is considered to be one of the most influential eco-activists in the fashion industry. As a result of her collaboration with Bolt Threads, which has created a Microsilk (a bioengineered material that imitates natural

silk), the dress made from this material has been created (Figure 1, d) [16].

Designers embody eco-trends not only in clothes, but also in accessories, following the principles of eco-design. They use a variety of materials: wood, jute, paper, cork, glass; fabrics made of natural materials: bamboo, linen, nettle, hemp and so on. Eco-material pinatex is especially interesting due to its natural origin – it is the fabric made of plant fibers. Its texture looks much like leather; that is why it is called *pineapple leather*. This kind of material is used in the Puma, Hugo Boss, Edun, HFS Collective, Altiir collections – in clothes, shoes, handbags and accessories [8].

Eco-bags for shopping are really popular. They can be made from recycled materials and can also be recycled. More and more designers are creating such handbags to support the planet's ecology and eco-consciousness trend. Eco-bags are made in different shapes and colors, with different author's illustrations and prints, with brand logos, etc. Eco-bags can be used not only for shopping purposes; they are also aesthetically beautiful. Thus, the Ukrainian brand of handbags and accessories made from waterproof paper – Raw Flaw [9] – adheres to the concept of sustainable living. They create bags and accessories that stay relevant regardless of trends and seasons. They use environmentally friendly material for the production – certified waterproof paper. It is durable and reliable eco-fabric, which can be washed and reused, it is safe and can be recycled (Figure 2, a).

The Figlimon brand produces stylish wooden designer handbags with replaceable covers, which makes it possible to diversify their design (Figure 2, b) [10]. The collections of the Ukrainian brand Tkachuk Cork Style [12], designed by Sergey Tkachuk, include paintings, clothes, shoes and accessories, made from wine corks (Figure 2, c).



Figure 1. Models of brands, which use eco-technologies:
 a – Holzweiler, Spring-Summer 2020, b – Ksenia Schnaider, Pre-Fall 2019,
 c – Issey Miyake, Pre-Fall 2019, d – Stella McCartney, 2017



Figure 2. Ukrainian brands, which use eco-materials:
 a – Raw Flaw, b – Figlimon,
 c – Tkachuk Cork Style



Figure 3. Brands that use eco-materials in the production of handbags:
 a – BossTon, b – Matt & Nat, c – Freitag



Figure 4. Creative collage and sketches of women's handbag collection

Ukrainian designers of the BossTon brand develop original models of handbags, made from natural fiber – hemp [11]. Such handbags have healing properties (Figure 3, a). Starting from 1995, the Canadian firm Matt & Nat has been producing eco-bags (Figure 3, b). They have stores in Canada, in the USA, in the UK, in Japan, in Germany and in Australia. Matt & Nat adhere to eco-technologies in the design of the products [13], and experiment with recyclable materials, such as nylon, cardboard, rubber, cork, bicycle tires, etc. Swiss brand Freitag produces bags, made from different eco-materials [14]. In 1993, graphic designers, Markus and Daniel Freitag, came up with their own waterproof bag for bicycle transportation of their own sketches

(Figure 3, c); later they started their own bag business, which were made from used tarpaulin (removed from trucks), car belts and airbags. For now, the Freitag network has about three hundred stores around the world.

One of the aspects of eco-fashion is the use of alternative materials, the production of which is safe for environment. Eco-friendly fabrics can be both synthetic and natural. Natural fabrics are of plant origin, in particular: hemp, organic cotton, jute, ramie, cork, modal, lyocell and so on. Table 1 presents characteristics and methods of production of eco raw materials, used for the production of handbags, accessories, clothes and other light industry products.

Table 1 – **Eco raw materials, used for the production of handbags**

Name	Characteristics and method of production
Hemp	It requires little water, no pesticides and no chemicals.
Linen	Breathable, microorganism-resistant fabric, used for the production of summer clothes.
Organic cotton	The plant is grown in fields that have not been treated with chemical fertilizers or pesticides for at least three years.
Jute	Rough cloth with homogeneous weaving is made of the same plant.
Ramie	Is made from nettles.
Cork	Is extracted from special specie of wood – cork oak.
Used tarpaulin	Dense fabric, impregnated with a waterproof solution, made from linen, half-linen or cotton fabric.
Modal (or rayon)	Made from beech or pine cellulose.
Lyocell	Made from eucalyptus cellulose.
Palm leather	Made from the leaves of arac palm. In order to make fabric, the leaves are left to soak in bio-solution. Elastic and durable palm leather is suitable for clothes, footwear and accessories.
Pinatex	After the harvest, the extra fruits are thrown away. Sturdy fibers are extracted from pineapple leaves by preservation in closed containers. It is used for the production of handbags and shoes.
Orange fiber	Remains of oranges are pressed, twisted, and cellulose is extracted.
Cloth, made from milk	The fermentation of the product is accompanied by the extraction of casein protein, to which natural components are added, and fiber is obtained.

On the basis of the conducted researches, a creative collage of a collection of women's handbags has been developed, for which lavender was the source of inspiration (Figure 4). The colors of beige cork material and lavender-blue give interesting combinations. The authors have designed sketches and produced the collection of handbags consisting of five round models. The round shape of the handbags is chosen, because it corresponds to the modern fashion trends and reflects the concept of the collection. Round shaped bags are up-to-date in the Spring-Summer 2019 season and take leading positions in the designers' collections.

Ecological ideas are embodied in the materials and in decoration of the collection's models. Cork is chosen as the main material, because it is a natural raw material that is extracted from living trees, cork oaks, without damaging trees. Cork oak is evergreen tree, which has special bark structure, suitable for the production of cork. Beige linen with white spots is selected as the material for backing. Linen fibers do not form charges of static electricity, have antiseptic and hypoallergenic properties. The handles of the bags are made

from jute and wooden round beans, which also embodies the concept of the collection. Eco-prints are floral drawings, images of trees and animals, plants, insects, birds, that is, natural objects; that is why the embroidery of lavender flowers that embodies naturalness, lightness and tenderness is chosen as the décor for handbags.

Conclusions. The market of eco-design is in constant dynamics. The use of eco-materials in the design makes it possible to obtain fundamentally new aesthetic properties, thereby opening new opportunities for the development of the fashion industry. The use of eco-materials promotes for the development of new constructive techniques by the designers, for the creation of the latest technologies in fashion industry; it makes it possible to diversify the artistic solution of the costume and to improve its expressiveness. The basic trends of eco-design have been analyzed and systematized; the classification of eco-materials has been developed. The collection of handbags, made from eco-materials, has been created.

Література

1. Чупріна Н. В. Энергозберігаючі технології екодизайну у створенні сучасного одягу як продукту індустрії моди. *Вісник КНУТД*. 2013. № 6. С. 245–253.
2. Дизайнерська діяльність: екологічне проектування: науково-методичне видання / Свірко В.О. та ін. Київ: УкрНДІ ДЕ, 2016. 196 с.
3. Будникова О.В. Экологические тенденции в дизайне костюма. *Научный рецензируемый журнал*. 2014. № 2. С. 60–69.
4. Fletcher K. *Sustainable Fashion and Textiles: Design Journeys*. Routledge, 2014. 267 p.
5. Niinimäki Kirsi. *Sustainable fashion: New approaches*. 2013, 210 p.
6. Vets T., Navolska L., Pashkevych K. Analysis of sustainability and environmental friendliness concepts in the modern fashion industry. Theory and practice of design. *Technical aesthetics*, Issue 11, 2017. P. 18-31.
7. Чупріна Н. В., Сусук М. Б. Апсайклінг та його визначення як напряму екодизайну в сучасній індустрії моди. *Вісник ХДАДМ*. 2014. № 3. С. 38-41.
8. Як модні бренди стають екосвідомими? *Voque* : веб-сайт. URL: <https://voque.ua> (дата звернення: 30.08.2019).
9. Про бренд *Rawflaw* : веб-сайт. URL: <https://rawflaw.com> (дата звернення: 27.07.2019).
10. Про бренд *Figlimon Crafta* : веб-сайт. URL: <https://figlimon.crafta.ua> (дата звернення: 30.07.2019).
11. Асортимент *Bosston* : веб-сайт. URL: <https://bosston.com.ua> (дата звернення: 30.07.2019).
12. Про бренд *ТkachukCorkStyle Cork-art* : веб-сайт. URL: <http://www.cork-art.com/sergey-tkachuk> (дата звернення: 20.07.2019).
13. About *MattandNat*: веб-сайт. URL: <https://mattandnat.com> (дата звернення:

27.07.2019).

14. About Freitag: веб-сайт. URL: <https://www.freitag.ch> (дата звернення: 26.08.2019)

15. Про бренд Ksenia Schnaider: веб-сайт. URL: <https://www.kseniaschnaider.com> (дата звернення: 27.07.2019).

16. Альтернативні тканини: з яких матеріалів шують еко-одяг. Burdastyle : веб-сайт. URL: <https://burdastyle.ua> (дата звернення: 25.07.2019).

References

1. Chuprina, N. V. (2013). Enerhozberihaiuchi tekhnologii ekodyzainu u stvorenni suchasnoho odiahu yak produktu industrii mody. [Energy-saving eco-design technologies in creating modern apparel as a product of the fashion industry] *Visnyk KNUTD*, 6, 245–253 [in Ukrainian].

2. Svirko, V.O. et al. (2016) *Dyzainerska diialnist: ekolohichne proektuvannia: naukovo-metodychne vydannia* [Design activity: ecological design: scientific and methodical edition] UkrNDI DE, 196 [in Ukrainian].

3. Budnikova, O.V. (2014) *Ekologicheskiye tendentsii v dizayne kostyuma*. [Environmental trends in costume design] *Nauchnyy resenziruemyy zhurnal*, 2, 60–69 [in Russian].

4. Fletcher, K. (2014). *Sustainable Fashion and Textiles: Design Journeys*. Routledge, 267.

5. Niinimäki, K. (2013). *Sustainable fashion: New*

approaches, 210.

6. Vets, T., Navolska, L., Pashkevich, K. (2017). Analysis of sustainability and environmental friendliness concepts in the modern fashion industry. *Theory and practice of design. Technical aesthetics*, 11. 18-31 [in Ukrainian].

7. Chuprina, N. V., Susuk, M. B. (2014). Apsaiklinh ta yoho vyznachennia yak napriamu ekodyzainu v suchasniy industrii mody [Upcycling and its definition as a direction of ecodesign in the modern fashion industry] *Visnyk XDADM*, 3, 38-41 [in Ukrainian].

8. Yak modni brendy stayut ekosvidomyu? URL: <https://vogue.ua> [in Ukrainian].

9. Pro brend Rawflaw. URL: <https://rawflaw.com> [in Ukrainian].

10. Pro brend Figlimon *Crafta*. URL: <https://figlimon.crafta> [in Ukrainian].

11. Asortyment *Bosston*. URL: <https://bosston.com.ua> [in Ukrainian].

12. Pro brend TkachukCorkStyle *Cork-art*. URL: <http://www.cork-art.com/sergey-tkachuk> [in Ukrainian].

13. About MattandNat. URL: <https://mattandnat.com>

14. About Freitag. URL: <https://www.freitag.ch>

15. Pro brend Ksenia Schnaider. URL: <https://www.kseniaschnaider.com> [in Ukrainian].

16. Alternatyvni tkanyny: z yakykh materialiv shyut eko-odiah. Burdastyle. URL: <https://burdastyle.ua> [in Ukrainian].

СУЧАСНІ ТЕНДЕНЦІЇ ВИКОРИСТАННЯ ЕКО-МАТЕРІАЛІВ В ДИЗАЙНІ ВИРОБІВ ЛЕГКОЇ ПРОМИСЛОВОСТІ

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Мета. Дослідження основних напрямів еко-дизайну, розробка класифікацій еко-матеріалів, визначення перспектив їх використання в дизайні сумок.

Методологія. Дослідження базувались на системному аналізі еко-матеріалів, загальній методології дизайну одягу та аксесуарів. На різних етапах дослідження використані методи системно-структурного аналізу та візуально-аналітичний метод.

Результати. Досліджені основні напрями еко-дизайну, розроблено класифікацію еко-

СОВРЕМЕННЫЕ ТЕНДЕНЦИИ ИСПОЛЬЗОВАНИЯ ЭКО-МАТЕРИАЛОВ В ДИЗАЙНЕ ИЗДЕЛИЙ ЛЕГКОЙ ПРОМЫШЛЕННОСТИ

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Цель. Исследование основных направлений эко-дизайна, разработка классификаций эко-материалов, определения перспектив их использование в дизайне сумок.

Методология. Исследования базировались на системном анализе эко-материалов, общей методологии дизайна одежды и аксессуаров. На разных этапах исследований использованы методы системно-структурного анализа и визуально-аналитический метод.

Результаты. Исследованы основные направления эко-дизайна, разработана классификация эко-

матеріалів, визначено тенденції використання еко-матеріалів в дизайні сумок, проаналізовано напрями моди, розроблено колекцію сумок з коркового матеріалу. Використання еко-матеріалів в дизайні виробів легкої промисловості дає можливість отримати нові естетичні властивості, тим самим відкриваючи нові можливості для розвитку індустрії моди. Використання еко-матеріалів сприяє розробці дизайнерами нових конструктивних прийомів, створенню новітніх технологій в модній індустрії, дає можливість урізноманітнити художнє рішення костюма і посилити його виразність.

Наукова новизна. Визначено закономірностей формування колекцій аксесуарів в еко-стилі, основні ознаки еко-стилю (колірна палітра, аксесуари, фурнітура).

Практичне значення полягає в тому, що розроблено колекцію моделей сумок в еко-стилі з використанням коркового матеріалу за актуальними тенденціями моди.

Ключові слова: еко-дизайн, дизайн сумок, корковий матеріал, еко-стиль, sustainable fashion.

материалов, определены тенденции использования эко-материалов в дизайне сумок, проанализированы направления моды, разработана коллекция сумок из пробкового материала. Использование эко-материалов в дизайн изделий легкой промышленности позволяет получить новые эстетические свойства, тем самым открывает новые возможности для развития индустрии моды, способствует разработке дизайнерами новых конструктивных приемов, созданию современных технологий в модной индустрии, дает возможность разнообразить художественное решение костюма и усилить его выразительность.

Научная новизна. Определены закономерностей формирования коллекций аксессуаров в эко-стиле, основные признаки эко-стиля (цветовая палитра, аксесуары, фурнитура).

Практическое значение заключается в том, что разработана коллекция моделей сумок в эко-стиле с использованием пробкового материала в соответствии с актуальными тенденциями моды.

Ключевые слова: эко-дизайн, дизайн сумок, пробковый материал, эко-стиль, sustainable fashion.

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