

Research status and advantages analysis of plant transfer printing and dyeing under the background of sustainable development

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Abstract. With the acceleration of social process, handicraft is gradually replaced by industrial production. The excessive use of chemical dyes has caused serious waste of resources, environmental pollution and physical harm, which is contrary to the five development concepts of innovation, coordination, green, openness and sharing proposed at the Fifth Plenary Session of the 18th CPC Central Committee. In November 2012, the 18th National Congress of the Communist Party of China incorporated the Five-sphere Integrated Plan for the cause of socialism with Chinese characteristics, making the CPC the first ruling party in the world to incorporate ecological civilization into its program of action. Ecological civilization construction under the leadership of the communist party of China has achieved a major breakthrough, at the same time also achieve rapid economic development, people's living standards generally improved, is given priority to with functional and practical products can not meet the growing spiritual and cultural demand, consumers desire in products demand more emotional resonance for nature. Based on the green development plan goal and the mainstream background of sustainable development proposed in the 13th Five-Year Plan, this paper sorts out the research status of plant printing and dyeing, and expounds the advantages of plant printing and dyeing combined with consumer willingness and market demand, which has reference value for further exploring the green development of plant printing and dyeing.

Keywords: Plant to printing and dyeing; sustainable development; green.

In particular, sustainable development is a forward-looking development model, which meets the needs of the contemporary people on the basis of protecting the existing ecological environment without harming the living conditions of future generations. This development model not only refers to pure ecological protection or environmental protection, it consists of three elements, namely, environment, society and economy. When a certain way or state is called "sustainable", it is necessary to meet the above three elements at the same time, reduce the environmental elements that produce or even do not produce pollution, still ensure the social elements that meet the needs of human beings, and the economic factors that play a certain role in boosting the economic construction. Sustainable development emphasizes the overall coordination of the three elements, to avoid the economic benefits obtained at the expense of the ecological environment, and to abandon the overall social stagnation caused by the mechanical protection of the environment. As an innovative handicraft rooted in traditional plant dyeing, plant conversion printing and dyeing belongs to the category of plant dyeing, and can be traced back to the Stone Age at the earliest, with profound cultural deposits and fresh vitality of The Times. In addition to following the creative concept of "taking nature and printing nature", it also expands the scope of natural dyeing materials. The creation process and finished products meet the requirements of green and sustainable development and can meet the multiple aesthetic needs of consumers. Plant conversion to printing and dyeing has inherited the precious cultural value of plant dyeing for thousands of years, followed the law of harmony between man and nature, and still has development potential and strategic advantages under the background of sustainable development.

1. Research status

Transfer printing and dyeing is the dyeing of physical objects (such as natural plant petals, leaves, fruits or metals, etc.) and cloth, leather, paper and other carriers, through high temperature cooking, ironing, tapping method, the color, shape, structure of the transfer of printing and dyeing process. Plant transfer to printing and dyeing methods are divided into high temperature heating and tapping two categories, The cooking method in high temperature heating is the coloring method of traditional plant dyeing method, Heat and color the fiber cloth in a pot used for staining, Ironing is using the high-temperature heating function of modern electrical appliances, Form the brand of the pigment and pattern on the fabric; It is from the "hammer grass printing" process handed down to the Ming and Qing dynasties, Select the pigmented plants in nature, Place the fabric under specific hollowed-out templates, Mainly with cotton cloth, Place the plants on the template for beating or tapping, In order to achieve the pigment through the hollow out print on the fabric effect, And forming the same pattern as a template, Now it is mainly spread in the border area of western Henan and Shaanxi.

On the related research of plant printing and dyeing, some foreign artists practice in the direction of plant printing and dyeing, and summarized part of the theoretical system according to the practice conclusion; the domestic research started late and not formed no system, related literature reference, only the preliminary practice and summary, the overall theoretical knowledge and practical research of plant printing and dyeing still exists.

Foreign research on plant printing and dyeing has achieved some results, including theoretical research and practical research. India Flint (Yin du Flint), an artist from Australia, has been committed to the practice of plant printing and dyeing since 1999, mainly using the Australian native eucalyptus trees and unique Australian quality wool as materials. Her unique resource advantages have also contributed to the characteristics of her works. For a while, she will be ordinary plants and wool collision out of the spark of art, and also pushed this special plant dyeing process to the forefront of the trend line. Based on years of creative experience, the artist India Flint published two books on plant printing and dyeing in 2008 and 2011, namely, *Eco Color: Botanical Dyes for Beautiful Textiles* and *Second Skin : Choosing and Caring for Textile and Clothing*. In recent years, India Flint still insists on creation, in addition to some artists from other countries for practical exploration, and the plant to printing and dyeing technology in clothing design.

In the spring and summer 2020 conference, Dior shows the use of plants to printing and dyeing process series of garment, figure 1-figure 4, fabric is given priority to with silk and wool, dyeing and printing color elegant, unique pattern, this is one of the fashion vane of the technology design application, enough to illustrate the future development trend and public consumption choice. In foreign countries, plant conversion to printing and dyeing is very popular as a novel handicraft.



Figure 1. Dior fashion show



Figure 2. Dior fashion show



Figure 3. Dior fashion show



Figure 4. Dior fashion show

Domestic printing and dyeing enthusiasts or independent studios, but only concentrated in a small range, practical application, such as socks, scarves, hats, lack of innovative and pioneering, no systematic theoretical framework, are concentrated in the last five years, this is a small wave in China. According to incomplete statistics, plant printing and dyeing studio is mainly distributed in Yunnan Dali, Guangdong, Guangzhou, Zhejiang, in addition to Dali has one thousand tie-dye, plant dye art, other areas of the economic level is higher than general cities, consumers for higher pursuit of art, climate suitable for the growth of a variety of plants, and the local has a larger fabric market, formed the plant printing and dyeing material advantages. Song Li, —, one of the representative figures in plant printing and dyeing, has been practicing plant printing and dyeing in ShenZhen since the end of last century, and has also made certain achievements. In October 2018, Song Li's plant cooking to printing and dyeing work "Leaf Shadow Dance" was selected into the "2018 International Pattern Creative Design Competition" and won the "Best Application Award", the work won a lot of praise and love, and also achieved gratifying sales results. Thus it can be seen that plants to printing and dyeing works in line with the public aesthetic and market demand, have a certain market competitiveness.

At present, the term "sustainable" has become the goal of many industries, especially the design field more emphasis on green, ecological, practical, to reflect the sustainability of design. In that of capitalist countries, compared with consumers in Europe and America, Chinese consumers are more inclusive and receptive in art forms, and the urgent demand for spiritual culture is greatly met, which also provides space and opportunity for the development of plants in China. Plant transfer printing and dyeing is rooted in the traditional plant dyeing spread in China for thousands of years, with profound cultural deposits. The excellent Chinese traditional culture has been innovated and developed in the new era context after the precipitation of history, and still has infinite potential across the long river of time.

2. Advantage analysis

On August 15, 2005, Xi Jinping, then secretary of the CPC Zhejiang Provincial Party Committee, said during a visit to Yu Village in Anji, " We used to say that clear waters and green mountains were gold and silver mountains, but in fact, clear waters and green mountains were gold and silver mountains." Since then, China has thoroughly implemented the general Secretary's speech and practiced the sustainable development concept. Under the guidance of the concept of green development, socialism with Chinese characteristics has entered a new era, and China's economic development has also entered a new era. At present, China's economy has shifted from a stage of rapid growth to a stage of high-quality development. In the past, China has experienced a very difficult period of development road, the needs of ordinary people is more in the material level of full food and warm clothes; with the rapid development of economy, culture, politics and other aspects, China has become a pivotal world power, the life of the people has changed dramatically. Many in the past can only through folk or verse word of mouth has happened, at the beginning of the last century many places spread "electric telephone, upstairs and downstairs" rhymes, the change of times already made this sentence become a reality, material life satisfy the people have diversified spiritual pursuit, high quality of life comes from the results of green development. In terms of plant to printing and dyeing, this innovative traditional plant dyeing handicraft still has unlimited development potential under the background of sustainable development, and has unique advantages in culture and history, green environmental protection and future development.

Plant printing and dyeing is the product of traditional culture in the new era, has a profound cultural background, in the "tiangong", "Tianshui iceberg record", "tang" have related records, inherited the traditional plant dyeing using natural plant dyeing material on natural fiber fabrics, and according to the social development and market demand for technological innovation, give ancient fresh culture. Ancient books record that China used natural plant dyeing materials when it started dyeing, so the use of plant dyeing materials has a history of thousands of years, and has accumulated valuable experience in the process of inheritance and development. According to scientific analysis and research, China's geographical environment and dimensional climate are suitable for large-area planting of plant dyeing materials. At present, the types and quantity of dyeing materials are large, which can fully provide fresh plant dyeing materials for various seasons for plants to printing and dyeing. Plant transfer printing and dyeing is essentially to extract the context and color of dyeing plants, the process does not involve the use of any chemical substances, printing and dyeing will produce some natural plant residues, after a certain treatment can be turned into high-quality fertilizer, do not produce any harm to the environment and the body.

On the basis of retaining the color, morphology and texture of dyeing objects, plant transfer printing and dyeing also has different printing and dyeing effects due to the different fabric properties, dyeing form, techniques, media and dyeing agents, and its color and texture live alone. The principle of plant printing and dyeing is plants contain a certain amount of tannic acid, can through a certain way on the fiber fabric color and pattern of printing and dyeing, because the tannic acid content changes every moment, the same plant or the same leaf tannic acid content is different, so after turn printing and dyeing texture, pattern, color is different, has not replicable. Like

traditional plant dyeing, the carrier of plant conversion to printing and dyeing is natural fiber material, such as cotton,

3. Conclusion

The development and research in China lack practical exploration and theoretical reference; as one of Chinese excellent traditional culture and the innovative form of Chinese intangible cultural heritage, the concept of green creation, national policy and market demand confirm its prospective development, and still has incomparable advantages of chemical dyeing in the present era.

With the acceleration of economic development, consumers' material needs are met and begin to pursue spiritual needs. The requirements for products should not only meet the basic practical functions but also have both aesthetic functions. The mechanical design of industrial assembly line products can only meet the actual functional needs, but can not carry more emotional support. The people yearn for the natural closeness and comfort, and desire the "original ecology" way of life. Therefore, the natural elements gradually return to people's sight, and the simple and pure design is widely favored and integrated into daily life, and the handicraft production method is particularly precious. At present, China is in the decisive stage of building a moderately prosperous society in an all-round way, promoting sustainable development will become an important topic of The Times, and plant printing and dyeing is the best way to retain various forms of nature to the products, from nature to nature, echoing the current green and sustainable development advocacy.

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