

Research on Packaging Innovation Design of Guangfu Culture Tea Drinks Based on Cultural Ecology Theory

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ABSTRACT

Guided by the cultural ecology theory, this study focuses on the innovative application of Guangfu culture in tea beverage packaging design, aiming to systematically analyze the integration strategy and foundation mode of its integration with tea beverage packaging design, so as to enhance the connotation value of the brand. By breaking down Guangfu culture into spiritual, material and behavioral levels, this study explores the evolution law and trend of each element in the cultural ecosystem, and then proposes specific strategies applicable to tea packaging design. Taking Wuzhou in Guangxi as a case study, this paper verifies the practical value of the method, accurately shows the expression of Guangfu cultural genes in tea drink packaging, and expands the theoretical and practical paths of Guangfu culture tea drink packaging design.

Keywords—cultural ecology; tea packaging design; Guangfu culture; Guangxi Wuzhou

Guangfu culture is an important branch of traditional Chinese culture, which is rich in connotation, covering many aspects such as language, food, art, customs, etc., and showing a unique Lingnan style. Under the impact of globalization and modernization, Guangfu culture is facing the challenge of preservation and inheritance. However, with the rise of cultural and creative industries, how to integrate Guangfu culture into modern design and revitalize it in an innovative form has become a key issue in the integration of cultural heritage and industrial development. As an important medium for carrying culture, tea is not only a daily consumer product, but also a cultural symbol. Tea beverage packaging design not only needs to meet the practical function, but also needs to undertake the task of spreading brand culture and enhancing consumer awareness. Therefore, integrating the core elements of Guangfu culture into the packaging design of tea drinks and showing the unique charm of traditional culture through modern design language can not only enrich the cultural connotation of the tea drink brand, but also realize the inheritance and innovation of Guangfu culture.

CONCEPT OF CULTURAL ECOSYSTEM

Culture Ecology

“Ecosystem”, also known as natural ecosystem, was proposed by A. G[1]. Tansley, which refers to a self-sustaining natural entity consisting of living and non-living organisms in a given space and time. In an ecosystem, living and non-living components communicate, depend on, order and exist with each other through energy flow, material circulation and information transfer[2].

Design culture ecosystem refers to the dynamic equilibrium system formed by the interaction between the elements in the design culture system and the external ecological environment. It reflects the ecological relationship between the design culture system and the environment, as well as the development status and law of the design culture system under specific time and space conditions[3]. The design culture ecosystem is not just a simple imitation of the traditional “ecosystem”, but applies the system analysis method to the design culture research, through the ecological perspective to explore the mutual influence, interaction and degree of compatibility between design culture and the environment. Design culture ecosystem mainly focuses on the relationship between design culture and its living environment in the process of design culture formation. Specifically, it studies the relationship between design behavior, design thinking, design phenomenon and its living environment. The “living environment” here is not limited to the natural environment in the traditional

sense, but refers to the socio-economic, cultural and educational, scientific and technological, and governmental policy factors in the humanistic environment. The study of design culture ecosystem aims to understand and reveal the adaptability, innovativeness and sustainability of design culture under different environmental conditions, so as to promote the progress and development of design culture[4].

The current state of the Guangfu cultural ecosystem in China

At present, China's design culture ecology on the state of imbalance, so we need to go to consolidate the ecology of design. First of all, the main problem in our country is blindly following the trend, for the cultural connotation of identity in the air, too much surface design[5]With the cultural integration brought about by globalization and the strong spread of foreign cultures, the younger generation's sense of identification with Guangfu culture has weakened. For example, many young people in the Pearl River Delta cities tend to use Mandarin or English, resulting in the Cantonese language facing a decline as an important symbol of Guangfu culture. Urbanization and the Disappearance of Native Cultural Space The rapid development of urbanization has squeezed the material space for the survival of Guangfu culture. For example, during the renovation process of the old urban areas in Guangzhou, a large number of mounted buildings have been demolished or commercialized, depriving the space that originally carried the cultural life of Guangfu of its cultural attributes. The Enning Road Riding House Block in Guangzhou once faced demolition and relocation as a whole, but after adjustments to the conservation plan, some of the riding houses were preserved, but their functionality has changed, making it difficult to reproduce the original Cantonese way of life. Guangzhou has carried out a “Cantonese Heritage Project” to strengthen the cultural identity of the younger generation through Cantonese theaters and Cantonese speech contests, but the effect is still limited. The rise of cultural and creative industries has injected vitality into Guangfu culture, but it has also brought the risk of alienation through commercialization. Guangfu cultural elements are oversimplified or symbolized, which may lead to the dilution of cultural connotations. For example, in the development of tourism commodities, many Guangfu cultural derivatives such as Lingnan Guangcai and lion dance dolls lack deep cultural connotations and exist only as sales gimmicks, failing to effectively convey the core values of Guangfu culture.

Analysis of the Components of the Ecosystem of Tea Packaging and Guangfu Culture

Figure 1 shows the deconstruction process of tea beverage packaging, which is divided into three layers: material, behavioral and spiritual. Each layer contains multiple attributes and shows multi-dimensional characteristics. The material layer refers to the physical objects that can be touched and perceived, including cultural materials, tools and places. Behavioral layer mainly embodies the behavioral patterns agreed upon in the culture, including rituals, systems, habits, and modes of operation, etc. The spiritual layer is the core of the culture. The spiritual layer, on the other hand, is the core of culture, covering aspects such as value orientation, beliefs, emotional awareness, and aesthetic interests. The three-level structure of tea beverage packaging and the attributes of each level describe the multifaceted characteristics of culture and are compatible with contemporary cultural ecology. This structure provides theoretical support for the design and promotion of tea beverage packaging, which helps to create cultural creative works with more depth and breadth, and promotes the integration and development of cultural heritage and innovation.

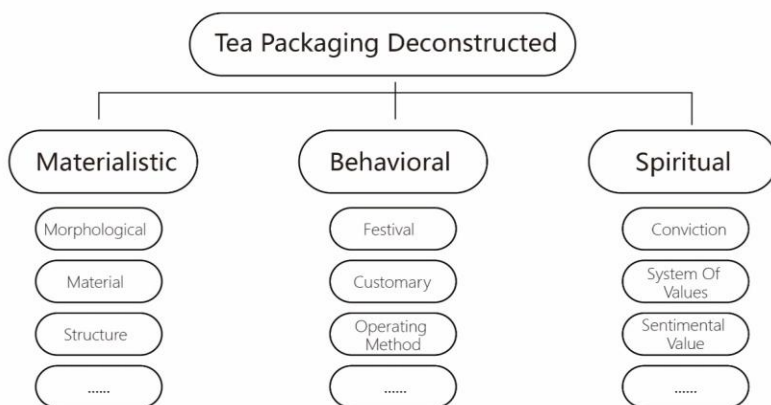


Fig. 1 Deconstruction process of tea beverage packaging based on cultural ecology Fig.

Deconstruction of the Guangfu Culture

The culture of a region is a system composed of natural material culture, social life culture and spiritual and psychological culture. At the core foundation level of Guangfu culture, natural material culture shows a variety of forms, which can be divided into material layer, behavioral layer and spiritual layer. The material layer is mainly embodied in explicit forms such as residential buildings, cultural relics and monuments, and folk crafts[6]. Under the influence of the fusion of northern and southern cultures and the collision of Chinese and western cultures, the residential architecture of Guangfu presents diversified characteristics[7]. For example, the riding towers and towers are a fusion of Western elements and local climatic characteristics, forming an architectural form that integrates functionality and culture. The decorations in the buildings also exude a strong Lingnan flavor, such as Manchurian windows and other artistic styles with traditional characteristics of Guangfu[8]. The behavioral layer contains Guangfu cultural folklore and skills. Dragon and lion dance, Guangcai, etc. are its components. The spiritual layer contains Cantonese opera, teahouse culture, etc., which is an important part of the nostalgia of old Cantonese people. A piece of Cantonese music and a ballad can often evoke old Cantonese people's childhood memories and nostalgia, and these expressions of spiritual culture are full of deep emotions and cultural connotations[9].

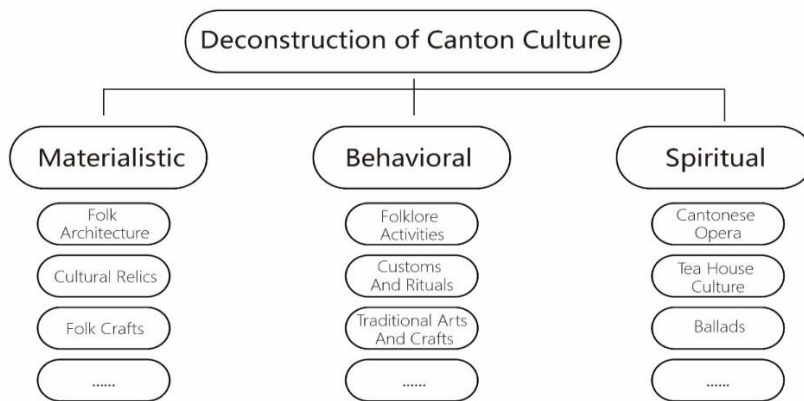


Fig. 2 Deconstruction process based on Guangfu culture

The significance of considering cultural ecology in the packaging design of tea drinks of Guangfu culture

Guangfu culture is the regional culture of the Cantonese-speaking region, referring to the cultural traditions of the Han Chinese inhabitants of the Guangzhou Province in the Pearl River Delta (PRD), with the PRD as the main spreading area. The regional cultures of the Cantonese-speaking region also include the Gao Liang culture in the western part of Guangdong, the Xijiang culture in the Xijiang River basin, and the Gui culture in the Guangxi region[10]. The Cantonese language originated from Wuzhou in Guangxi, and its origin can be traced back to the ancient state of Cangwu in Lingnan about 5,000 years ago, which is an important birthplace of Lingnan and Pearl River cultures, as well as the birthplace of the Cantonese language. The two regions have been culturally intertwined since ancient times, and it was not until the Song Dynasty that the two regions were formally divided into two administrative districts, with the formation of the Cantonese language occurring as early as the Song Dynasty and being widely used in the two regions. Therefore, Guangxi Wuzhou, as a representative of Guangfu culture, is an important reference value for tea packaging design, which can provide new creative materials and inspiration for the design.

The cultural and ecological significance of Guangfu culture tea drink packaging design is reflected in three aspects: cultural heritage, cultural exchange and brand enhancement. First of all, as an important part of Chinese traditional culture, Guangfu culture inherits its essence and characteristics through tea packaging design, and enhances consumers' sense of cultural identity by utilizing elements such as cultural symbols, patterns and words. Secondly, as a medium of cultural exchange, tea packaging design demonstrates the unique charm of Guangxi Wuzhou Guangfu culture, attracts people to understand and spread Guangfu culture, and becomes an important channel to promote cultural exchange between China and foreign countries. Finally,

Guangfu culture tea packaging design reflects the cultural identity and artistic taste of the enterprise, and enhances the brand image and added value of the product.

CULTURAL ECOLOGY-BASED DESIGN PROCESS OF GUANGFU CULTURE

Analysis of the evolution of the Guangfu cultural ecosystem

The cultural ecosystem is an organic whole composed of the interaction between culture and its environment, which mainly includes five elements: natural environment, science and technology, economic system, social system and values. The system is in continuous evolution and acts as an open system, exchanging information and materials across geographical areas to promote cultural exchange and innovation [11]. The cultural ecosystem is a dynamically developing system, and the continuous evolution of its elements and cultural individuals is one of its basic characteristics. Taking Guangfu culture as an example, there is a significant difference between the components of the cultural ecosystem in the agricultural era and the information era. To analyze the evolution of Guangfu culture, it is necessary to combine literature analysis and expert consultation to explore the changes in its material individuals, natural environment, science and technology, economic system, social system and values. In the packaging design of tea drinks of Guangfu culture, it is also necessary to pay attention to the changes and interactions of the elements of the cultural ecosystem between the prosperous period of Guangfu culture and the contemporary culture.

Trade-offs and Transformations of Guangfu Cultural Ecosystem Attributes under the Role of Cultural Ecology

The attributes of the Guangfu cultural ecosystem are constantly undergoing selection and transformation as a result of the cultural ecology. With the passage of time and changes in the social environment, some attributes of Guangfu culture, such as traditional skills, values and festivals, are retained and continue to have an impact because they are compatible with contemporary needs and values. At the same time, some attributes have been transformed to meet the needs of modern society, absorbing new elements and forming new cultural forms. Some of the cultural attributes that do not match the contemporary ecology or have lost their functions are gradually eliminated or forgotten, especially those traditional customs that are not conducive to the progress of society and the free development of individuals. For example, in ancient China, feudal parents often practiced a cruel practice when their girls were four or five years old, forcing the toes and arches of the feet to fold inward toward the center of the foot, and wrapping the foot tightly around the ball of the foot, resulting in soft-tissue contractures that impeded the normal development of the foot, in order to give the girl what was considered to be a beautiful “three-inch golden lotus”. However, with the continuous development of society, the status quo women can be free big feet out of the family, have a job and economic them, the subject consciousness is also slowly emancipated [12]. All these are mainly driven by the change of values.

Based on the Cultural Ecology of the Guangfu Culture Tea Beverage Packaging Design Strategy

The Guangfu culture tea drink packaging design process focuses on the screening, transformation and application of Guangfu culture to ensure that it conveys the cultural essence and integrates into the contemporary cultural ecology. Divided from Guangfu culture and tea beverage packaging corresponding to the spiritual layer, material layer and behavioral level, they are interrelated and interact with each other, from the surface to the inside, from shallow to deep[13].

Transformation in the material layer

Shifting Shapes is the process of integrating Guangfu culture into modern creative products. The material aspects of Guangfu culture are susceptible to cultural ecology, and technology has driven innovation in its forms, materials and tools. When transforming, it should incorporate contemporary values, retain its morphological features, and utilize modern technology to provide economical and efficient materials for tea beverage packaging, replacing traditional carriers. When incorporating modern tea drink packaging, its fit with Guangfu culture needs to be considered; the higher the fit, the better the product can adapt to the modern cultural ecology. As shown in Fig. 3, taking “Hope” table tennis racket packaging as an example, modern

materials and production technology are used to combine the rising sun, which symbolizes “hope”, from the mountains, lakes and seas, and the city with what is known as China's table tennis racket to form a unique visual art effect.



Figure 3 “Hope” Table Tennis Paddle Packaging

Randomization at the behavioral level

Adaptability refers to the fact that the cultural attributes of the behavioral layer of Guangfu culture should be adjusted in response to changes in the cultural ecology. The behavioral layer connects the material layer and the spiritual layer, and reflects the spiritual connotation through interaction. The behavioral layer is often neglected in tea packaging design, but the interaction between people and packaging is an important way to convey culture. When choosing the attributes of the behavioral layer, we should consider the objective factors such as economic system, social system, technological progress, as well as its compatibility with the packaging carrier and the behavioral habits of contemporary users. Take the design of the “left-handed” ruler as an example (as shown in Figure 4), the “left-handed” ruler is inspired by the insight of the left-handed people, and both the right-handed people and the left-handed people are taken into consideration when designing the ruler, so that the usage habits of different groups of people are well served. It is designed with both right-handed and left-handed people in mind, so that the usage habits of different groups are well served.

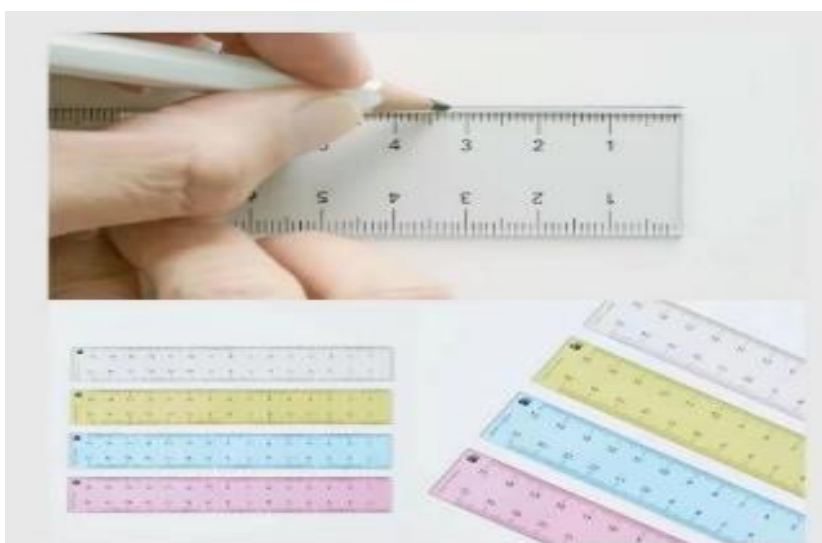


Fig. 4 Ruler product design for The Lefties

De-authentication at the spiritual level

Removing the false and keeping the true refers to retaining the essence of culture and removing the

inapplicable parts.” The “true” is the cultural attributes that are in line with contemporary social systems and values, while the “false” is in conflict with them. The spiritual layer of Guangfu culture should follow this principle, retaining the parts that are in line with socialist core values and harmonizing with the material and behavioral layers. Taking the packaging design of “With Phoenix” wine as an example (as shown in Fig. 5), “With Phoenix” is a traditional Chinese symbol of good luck and auspiciousness, meaning that there is a marvelous and beautiful bird, the phoenix, to match it, describing it as extremely noble, magical and wonderful. It is used as a metaphor for the coming of an outstanding person, demonstrating the style of “rites” that have been fused with the past to form the present. The work reveals the rebirth and regeneration of life, light and hope, power and glory, beauty and peace, spirituality and wisdom, etc., and brings people endless revelation and beautiful hope of the beautiful symbolism, expressing the harmonization of the product's spiritual layer, behavioral layer and spiritual layer.



Fig. 5 Packaging Design of “With Phoenix” Liquor

Tea Packaging Design Practice of Guangfu Culture Based on Cultural Ecology--Take Guangxi Wuzhou Zhongcha Six Castles Tea as an Example

Guangfu Cultural Characteristics of Wuzhou, Guangxi

Located in the Lingnan region with a warm and humid climate, Wuzhou is an ancient city with a thousand-year history in the eastern part of the Guangxi Zhuang Autonomous Region, and one of the birthplaces of the Lingnan and Pearl River cultures. Streets are the embodiment of the city's inner culture, “the richest place for folk culture, commercial culture, marketplace culture and residents' culture. The history of Wuzhou riding buildings can be traced back to the beginning of the 20th century, they witnessed the prosperity and changes of the city, riding buildings as a unique architectural form of Wuzhou, is one of the symbols of the prosperity of the city's trade and commerce [14]. It has preserved a large-scale riding tower neighborhood, with 22 existing streets and 560 riding tower buildings, which is a rare architectural complex in China with more than 2,000 years of historical and cultural heritage. Wuzhou is located in the subtropical monsoon climate zone, with an average annual temperature of about 21°C. The favorable climatic conditions and rich natural resources provide a unique ecological environment for the cultivation of Liu Bao tea. Liu Bao tea is famous for its red color, rich aroma and mellow taste, which makes it a representative black tea. The root and soul of tea lies in culture, and only by incorporating culture into tea can its history be passed on. Liu Bao tea originated in the Tang and Song dynasties, flourished in the Ming and Qing dynasties, has a history of more than 1,500 years, during the Jiaqing period with a unique betel nut flavor renowned at home and abroad, and was listed as one of the national famous tea. Liu Bao tea carries the characteristics of Lingnan culture and is popular for its medicinal effects, especially in the South China Sea. In addition, Liu Bao tea is closely related to the culture of “morning tea” in Guangdong and Guangxi, which has become a symbol of the gathering of family and friends and is widely popular. Liu Bao tea culture is also reflected in the rich folklore, such as the legend of the tea Luo Niang, the tea festival on the day of the Spring Society, and tea-related local theater and mountain songs. Liu Bao tea has taken root in folk customs, proving its ancient tea status, creating a rich and colorful tea

culture and possessing a large number of intangible cultural heritage resources. The development of Liubao tea is inseparable from the accumulation and inheritance of local tea culture, Liubao tea is named because it is produced in Liubao Township, Cangwu County, Wuzhou, Guangxi. Liubao tea also gradually integrates and develops with the local society and culture, becoming part of Wuzhou tea culture and representing the deep heritage and unique charm of Wuzhou tea culture[15]. Firstly, the cultural attributes of Guangxi Wuzhou are excavated through literature research and field survey, and then its hierarchical structure is determined through logic diagram classification, and finally the Delphi method is applied to adjust and determine the hierarchical structure of Guangfu culture and the characteristics of each attribute, and the results are shown in Figure 6.

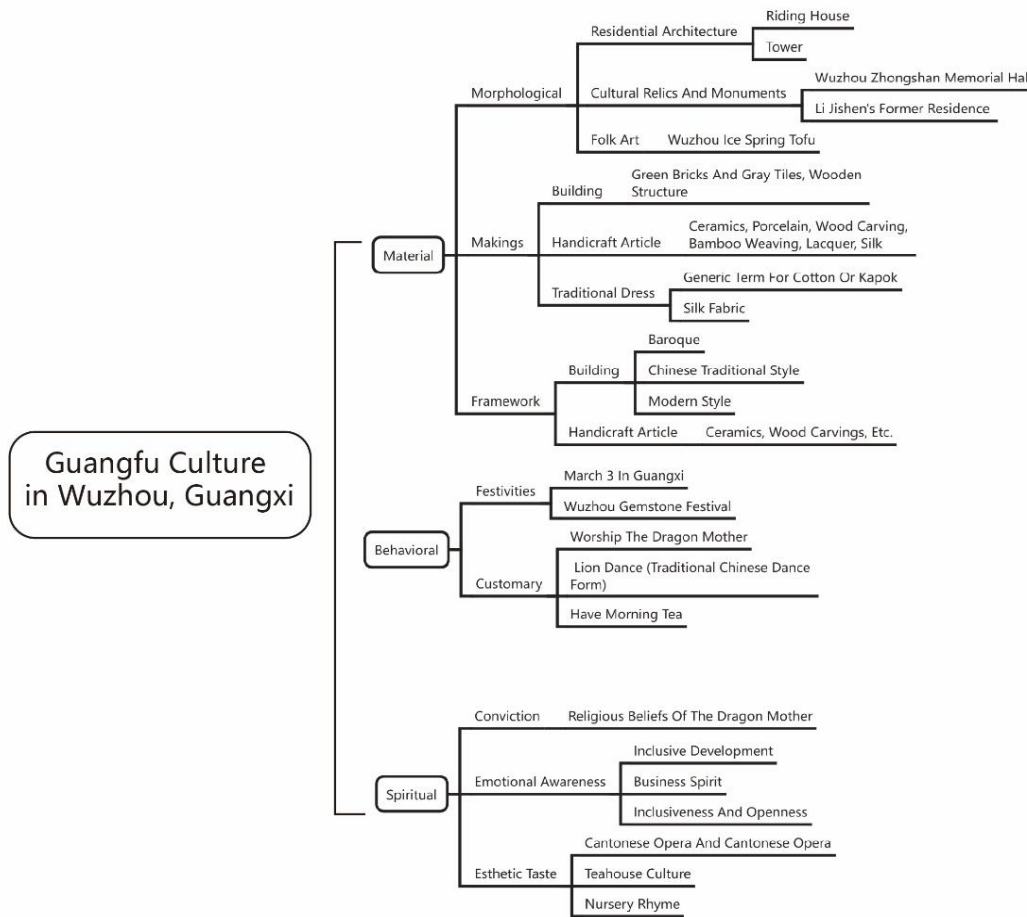


Fig. 6 Deconstruction of Guangfu Culture in Wuzhou, Guangxi

Six Fort Tea Culture in Wuzhou, Guangxi

The birth date of Liubao tea has long been disputed in academia, but folklore traces its origin to the period of Yu and Shun (2255 BC to 2212 BC). Liubao Town and the surrounding areas have a long tradition of tea production, and according to Prof. Zhuang Wanfang, the history of Liubao tea production can be traced back to more than 1,500 years ago, around the period of the North and South Dynasties [16]. As a non-heritage resource, the Liu Bao tea production technology contains the cultural consciousness and spiritual value of the local ethnic groups, embodies the vitality and creativity of the Chinese nation, is the ancient memory of the nation and the emotional bond of the people of all ethnic groups, and is the foundation of the development of the country and the nation. The technology not only has the characteristics of protection and utilization, but also has the diversity, living, ornamental and interesting, development potential is high.

Nowadays, Liu Bao tea has become a business card of Wuzhou City, Guangxi, representing the rich local tea culture and unique tea-making techniques, and has made important contributions to the tea industry in Lingnan region [17]. The production process of Liu Bao tea from fresh tea leaves mainly consists of five processes: greening, kneading, stacking and smothering, re-kneading, and drying [18]. In addition, Liu Bao tea also has the health benefits of lowering fire, preventing arteriosclerosis and lowering fat and weight loss [19].

In the process of marketization, it has promoted the close cooperation between Yao tea farmers and Han tea merchants, traditional technology and modern technology, forming a multi-ethnic inter-embedded development of the industrial community, which provides a valuable example for the rapid development of the Liu Bao tea industry and cultural exchanges [11]. Through the understanding of Liubao tea, Liubao tea non-heritage protection and inheritance need more help.

Analysis of the Evolution of the Guangfu Cultural Ecosystem in Wuzhou, Guangxi

Through literature studies, field surveys and the Delphi method, we observed the evolution of the components of the Guangfu cultural ecosystem in Wuzhou, Guangxi, as shown in Table 1. In this process, certain time periods are relatively stable with insignificant changes, while other time periods have significant changes. The table clearly shows that, except for the natural environment, all the other constituent elements have undergone great changes

Table 1 Evolution of the constituent elements of the Guangfu cultural ecosystem in Wuzhou, Guangxi

Elements of cultural ecosystems,	Historical cultural ecosystems	Contemporary cultural ecosystems
Natural Environment	Southern China, Lingnan Region	No change
Science and technology,	agrarian civilization, empirical technology, manual production information civilization,	intelligent production. Information civilization, technological development, intelligent production
Economic system	Mallholder economy	Commodity economy
Social system	Feudal patriarchal society	Socialist society in which men and women are equal, democratic, civilized and harmonious
Values	Confucianism	Pluralism and Mutual Integration

Analysis of the Adaptability of Guangfu Culture in Wuzhou, Guangxi to Contemporary Cultural Ecology

The evolution of the cultural ecosystem inevitably affects Guangxi Wuzhou Guangfu culture, resulting in the preservation, extinction or transformation of certain cultural attributes. Through field survey, logical analysis of cultural attributes and ecosystem adaptation, focus group discussion, expert consultation and questionnaire survey, we obtained the available cultural attribute set of Guangxi Wuzhou Guangfu culture, as shown in Table 2. When designing the tea drink packaging, we selected suitable cultural attributes from the available cultural attribute set according to the functional and morphological characteristics of the carrier.

Table.2 Guangxi Wuzhou Guangfu Cultural Paper Available Cultural Attribute Collection

	Hierarchy	Properties	State
A Collection of Available Cultural Attributes of Guangxi Wuzhou Guangfu Culture	Material	Materials, Tools, Forms ,Cavalcade City,	Watchtower, Canton Style Signboards
	Spiritual	Lingnan Culture	Business Spirit, Tolerance and Openness, Longmu Religion
	Behavioral	Customs	tea drinking, Guangxi March 3 activities, Wuzhou Gemstone Festival, worshipping the Dragon Mother, etc.

At the material level, the impact of technological development has made Guangfu culture in Wuzhou, Guangxi, more diverse in terms of materials. For example, the Wuzhou Riding Floor City originated in South Asia and spread to South China through trade and cultural exchanges, becoming a local landmark. There are many stores on the mounted buildings, reflecting the commercial-heavy spirit of Lingnan culture, creating a thriving commercial scene and an increase in signboards with Cantonese characteristics. In addition, the sidewalks of the Riding Staircase sheltered pedestrians from the wind and rain, created a comfortable business environment for merchants, and enhanced the quality of life. Under the influence of the shift in social values, Wuzhou's graphic composition has added some modern elements, but the Nanyang architectural style and traditional buildings are still the mainstream of the public's perception of the material level. [11].

At the behavioral level, influenced by the economic system, social system and values, the tea-drinking culture of Wuzhou in Guangxi is unique and has a long history. People in Wuzhou demand high quality of tea, especially cherishing the local specialty Liu Bao tea, and tea brewing is usually carried out in elegant environments such as teahouses, gardens or courtyards, creating a relaxing and pleasant atmosphere. Tea brewing techniques, from tea selection to drinking a unique set of processes, tea is not only a habit of life, but also a social activity, often in the party with tea to meet friends, to enhance the relationship. Wuzhou people use a variety of tea utensils, such as purple clay pots and glass tea sets, to adapt to different tastes and occasions. In addition, Wuzhou organizes local festivals such as the 3rd March of the Zhuang, the Jewel Festival and the Worship of the Dragon Mother.

At the spiritual level, Wuzhou's values are significantly influenced by its historical background. As the political, economic and cultural center of the Lingnan region, Wuzhou is known as a “century-old commercial port”, so the Guangfu culture has a prominent mercantile spirit. Wuzhou has a profound tea culture, and tea drinking has been deeply rooted in people's hearts since ancient times, becoming a part of local life. With the deepening of reform and opening up, tea export has developed rapidly and become one of the important pillars of the local economy. Tea export is not only a commodity trade, but also promotes cultural exchange. Wuzhou people interact with the international market through tea, promoting cultural dissemination and development. The prosperous commercial atmosphere and all kinds of store signs in the Riding Tower City reflect the pride and cultural identity of Wuzhou people for local tea, and this self-confidence prompts them to actively promote local tea brands.

Guangfu Culture - “Guangfu Autumn Rhythm” Tea Drink Packaging Design According to the analysis of Guangfu culture and its cultural ecosystem in Wuzhou, Guangxi, the packaging design of tea drinks needs to carry the culture of Liubao tea, while discarding the cultural elements that are not adapted to modern development. The packaging design should also guide the public to recognize, accept and spread the good elements of Guangfu culture in order to promote its inheritance. In the tea packaging design for the Mid-Autumn Festival in Guangfu style, we integrate traditional festival elements with modern design concepts, taking Wuzhou riding buildings and people's life situations as the main part, and combining traditional cultural inspirations such as the moon and the moon rabbit, to create a tea packaging full of poetic meaning and Guangfu sentiment, as shown in Figure 7.



Figure 7 “Guangfu Autumn Rhythm” Mid-Autumn Tea Packaging Design

In terms of material selection, high quality aluminum box material is chosen for this design, mainly considering the environmental characteristics of aluminum packaging and its functional advantages. Aluminum is a highly recyclable metal with no loss of performance in the recycling process and has the potential for unlimited recycling. Compared with extracting aluminum from aluminum ores, recycled aluminum products consume more than 90% less energy, effectively reducing resource consumption and CO₂ emissions, thus significantly enhancing their environmental value. In addition, recycled aluminum has a wide range of uses, including the production of new packaging, automotive parts, and construction materials.

Based on the functionality and environmental advantages of aluminum box packaging, this design will further focus on the visual aesthetics of the packaging material. In the packaging process, a combination of embossing process and physical matte treatment is used to enhance the artistry and layering of the aluminum box.

Embossing is a surface treatment technology commonly used in aluminum box packaging, in which patterns or textures are embossed on the surface through a combination of pressure and temperature to create a three-dimensional and tactile effect. The process can be used to highlight elements (such as lines or specific patterns) in the packaging design by bumping or recessing them, thus forming patterns and textures of different shades on the surface of the aluminum box and enhancing its visual effect and artistic expression. At the same time, the embossing process is an environmentally friendly process, and its production process is pollution-free, which is in line with the requirements of the current trend of green design. In practice, the choice of material and thickness of the aluminum box is crucial to the effect of the embossing process. If the aluminum box is too thin, it may not be able to provide sufficient protection during transportation; while too thick a material may affect the fine presentation of the embossing process. Therefore, the aluminum box material of 0.5mm thickness is chosen for this design, which has both excellent durability and heat preservation performance, and is suitable for the functional and aesthetic needs of Guangfu Qiuyun tea packaging.

In addition, to further enhance the visual texture and durability of the packaging, this design utilizes a physical matte finish process. Matte treatment can make the surface of the aluminum box show a soft, low-luster effect, which is suitable for design scenarios that do not require a strong visual impact. The surface of the aluminum box after matte treatment is not only more beautiful, but also has strong wear resistance and corrosion resistance. Compared with traditional chemical treatment methods, physical matte treatment is more environmentally friendly and suitable for mass production, but it needs to rely on professional equipment to ensure the accuracy and consistency of the process. As shown in Figure 8. The design aims to present a Canton style Mid-Autumn Festival tea packaging, which is rich in festive atmosphere and integrates the regional characteristics of Guangxi Wuzhou and modern aesthetics, making it an ideal choice for gifting to friends and relatives or for personal use.

In terms of cultural connotation, this packaging design digs deep into the commercial spirit and local cultural characteristics of Wuzhou, Guangxi, and strives to convey historical information and cultural values through visual language. As an important symbol of commercial prosperity in the Lingnan region, the unique architectural form and rich commercial activities of Wuzhou Cavalcade City constitute the source of inspiration for this design. Historically, local residents used to gather underneath the Riding Tower buildings to engage in the tea trade, creating a vivid commercial scene: underneath the Riding Tower, workers transporting tea flowed endlessly, vendors trading tea were busy and orderly, while residents sat down in twos and threes to sip tea and discuss the topic. Various eye-catching commercial signboards are hung above the riding tower, adding a unique commercial atmosphere to the city. These scenes, as shown in Figure 9, not only reproduce the history of commercial prosperity and development of the Riding Floor City, but also highlight the unique vitality of the local commercial culture. The commercial activities about tea under the riding tower city not only reflect the important position of Wuzhou as a regional tea trade center, but also show the deep historical and cultural heritage of Liubao tea. The series of activities of transportation, trading and tea tasting depict the commercial value and social significance of Liubao tea in the Lingnan region. This commercial exchange about tea blends Lingnan culture with the history of Wuzhou Liu Bao tea, building a commercial ecosystem full of humanity. By incorporating these historical scenes, this packaging design demonstrates Wuzhou's unique position in commercial and cultural development, and gives deeper cultural significance to Guangfu Autumn Rhythm tea.

In the choice of communication carrier, this packaging design takes the moon of the Mid-Autumn Festival as the theme, highlighting the traditional festival culture and evoking emotional resonance among consumers. The design combines the special shape of the mooncake to construct a unique packaging form to attract attention and enhance the product's recognition and attractiveness, as shown in Figure 10. By using the mooncake as a carrier, it conveys the symbolism of reunion, beauty and blessing, further reflecting the festive atmosphere and family warmth. The packaging design adopts warm festive colors, such as red and golden yellow, in order to create a strong Mid-Autumn festival atmosphere. This color choice not only conveys the blessings and festive feelings of the festival, but also forms a high degree of compatibility with consumers' emotional expectations, as shown in Figure 11. This design, through the clever fusion of color and shape, makes the packaging both culturally meaningful and able to meet modern aesthetic needs.

This Guangfu Autumn Rhythm Tea Drink packaging design utilizes traditional cultural elements combined with modern design concepts, retaining the traditional shape of the mooncake while injecting modern fashion elements to highlight the atmosphere of the times.

For the innovative design of Guangfu culture tea drink packaging based on cultural ecosystem, it is first necessary to deconstruct the material layer, behavioral layer and spiritual layer of Guangfu culture. Then, analyze the evolution of the constituent elements of the cultural ecosystem, and analyze how Wuzhou Guangfu culture changes in the contemporary cultural ecosystem under the attributes of different levels, including retaining the cultural attributes that adapt to the contemporary cultural ecosystem and dealing with the cultural attributes that are in conflict with it. Finally, based on the new things in the contemporary cultural ecosystem, the unadapted cultural attributes are transformed. Only when the aesthetic value, cognitive value, artistic value, and audience acceptance value reach a state of high unity, Guangfu culture can better stand in the flood of the times with a new attitude [20].



Figure 8 “Guangfu Autumn Rhythm” Mid-Autumn Tea Packaging Design with Embossing Process and Matte Finish



Figure 9 “Guangfu Autumn Rhythm” Mid-Autumn Festival Tea Packaging Design Illustration of the Spirit of Commerce



Figure 10 “Guangfu Autumn Rhythm” Mid-Autumn Tea Packaging Design Inside Tea Mooncake Box Design



Figure 11 “Guangfu Autumn Rhythm” mid-autumn tea packaging design overall atmosphere display

CONCLUDING REMARKS

Packaging design carries Guangfu culture, which is its main feature. Designers need to reasonably inherit Guangfu culture and integrate it into modern life when developing Guangfu cultural creative products. This paper applies the theory of cultural ecology to analyze the adaptability of Guangfu cultural attributes and contemporary cultural ecology, starting from the external environment of Guangxi Wuzhou Liu Bao Tea Culture, and discusses the trade-offs and transformations of the cultural attributes and their application in packaging. This design practice also puts forward the process and strategy of tea beverage packaging design based on cultural ecology from the functionality, environmental protection and aesthetics of packaging, and takes Guangxi Wuzhou Liu Bao Tea's Guangfu Autumn Rhythm tea beverage packaging design as an example for practice. In addition, Guangxi Wuzhou Guangfu culture and Liu Bao tea culture influence each other, and the creative products designed through this method not only reflect the characteristics and cultural nature of tea, but also enhance the brand value, exploring a new path for the future development of products in ethnic areas.

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