



Research Paper

# Application of Food and Medicine Homologous Seasoning on Xinjiang Characteristic Roasted Chicken—a review

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**ABSTRACT:** Xinjiang is located in the northwest of China, because of its unique geographical environment and abundant natural resources, it has formed a unique culture of medicine and food homology and spices, which play an important role in promoting health while enhancing the flavor of the diet. The purpose of this study is to promote the reasonable, effective and sustainable development of the industrialization of medicine and food homology resources in Xinjiang, help "poverty alleviation" and "rural revitalization", promote the culture of traditional Chinese medicine, and help build a healthy China. In the future, with the increase in people's demand for healthy diet, these natural medicinal and edible homologous seasonings will have a broader application prospect.

**KEYWORDS:** Medicine and food homology; Xinjiang; Chicken; Seasoning

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## I. INTRODUCTION

### 1.1 Overview of Edible and Medicinal Seasonings

"Medicine and Food Homology" refers to the concept that some food also possess medicinal properties, thus embodying both attributes simultaneously. Ancient medical practitioners applied the theories of the "Four Natures" (cold, hot, warm, cool) and "Five Flavors" (sour, bitter, sweet, spicy, salty) from traditional Chinese medicine to foods, believing that each type of food possesses these characteristics. This indicates the origin of this concept. Therefore, from the perspective of medicine and food homology, dried ginger, cinnamon, star anise, galangal, Sichuan pepper, kaffir lime peel, angelica dahurica, tsaoko, Amomum villosum, dried tangerine peel, chili peppers, licorice, bay leaves, fennel, cloves are usually used as ingredients in food. These include Codonopsis, jujube, Astragalus, Goji berries (from Xinjiang), Cistanche (from Xinjiang), lotus seeds, mulberries, Angelica sinensis, Chinese yam, Poria cocos, licorice (from Xinjiang), Pueraria lobata, and Hawthorn.

## II. OVERVIEW OF EDIBLE AND MEDICINAL SEASONINGS

### 2.1 Overview of medicine and food homology resources in Xinjiang

Xinjiang is located in the central part of the Eurasian continent and in the northwest region of China. It has a consistently dry climate with complex and diverse terrains, significant temperature differences, and a rich ecosystem and biodiversity. This environment has fostered a wide variety of aromatic plant resources. Additionally, the climate in Xinjiang is quite similar to that of the Mediterranean region, providing favorable conditions for introducing, cultivating, and planting different types of aromatic plants. Aromatics can be detected by both smell and taste, making them suitable for creating essential oils [1-3].

This article leverages the characteristics of aromatic plants to enhance the traditional seasoning blend with the unique flavors of Xinjiang's Cistanche, Goji berries, Licorice, and Jujubes, thereby enriching its flavor profile and nutritional content. Below are detailed introductions to Cistanche, Goji berries, Licorice, and Jujubes.

### **2.1.1 Cistanche**

Cistanche (Latin name: *Cistanche deserticola* Ma): Belongs to the genus *Cistanche* within the *Orobanchaceae* family. It is a parasitic perennial herb that grows on the roots of desert shrubs like *Haloxylon ammodendron*. It is an endangered species and under second-class national protection in China. Its main production areas are Inner Mongolia, Ningxia (Azo Banner), Gansu (Chagma), and Xinjiang of China. Cistanche is used for enriching blood and essence, moisturizing the intestines, and relieving constipation. It has a sweet, salty, and warm nature and is associated with the Kidney and Large Intestine meridians. Clinically, it treats essence and blood depletion, impotence infertility, soreness and weakness of the waist and knees, and muscle weakness. It is commonly used for treating constipation due to fluid deficiency, body weakness, postpartum constipation, and constipation in the elderly [4-6].

### **2.1.2 Goji Berries**

Goji berries (Latin name: *Lycium dasystemum* Pojark.): Belong to the *Solanaceae* family and are primarily found in regions like Gansu, Ningxia, and Xinjiang. Goji berries are precious Chinese medicine with numerous benefits including health promotion, disease treatment, and beverage production. They are rich in *Lycium barbarum* polysaccharides, vitamin C, iron, and other nutrients, effectively replenishing vitality and generating essence. The LBP (*Lycium barbarum* polysaccharide) in goji berry significantly boosts bone marrow hematopoiesis and immune cell function, enhancing superoxide dismutase (SOD) activity, effectively clearing reactive oxygen species (antioxidant effects), delaying aging, protecting the liver, lowering blood sugar, and combating fatigue among other pharmacological activities [11].

### **2.1.3 Licorice**

Licorice is derived from the dried roots and rhizomes of *Glycyrrhiza uralensis* Fisch., *Glycyrrhiza glabra* L., or *Glycyrrhiza inflata* Bat. It is mainly distributed in Xinjiang, Shandong, Shaanxi, Gansu, Qinghai, Northeast China, and North China. Xinjiang is the primary supplier of licorice, accounting for over 50% of the country's production. Its main effects are expectorating and cough-relieving, strengthening the spleen function, harmonizing all herbs relieving urgent pain detoxifying heat and clearing toxicity. It is frequently used to treat spleen deficiency carbuncles and sores lethargy and weakness cough with abundant phlegm abdominal spasm and limb pain and can alleviate drug toxicity and severity [5-8].

### **2.1.4 Jujubes**

Jujube belongs the *Rhamnaceae* family and originated in China with a history of over eight thousand years. Since ancient times, it has been one of the "Five Fruits" (peach, plum, apricot, jujube, chestnut). Jujubes contain proteins, triterpenoids fats essential amino acids carbohydrates and trace elements such as iron, calcium, selenium, zinc and phosphorus; they are also rich in vitamins A, B1, B2, etc. Among them Lingbao jujubes can regulate the heart and lungs metabolism, nourish the kidney and stomach. The tannins nitrates tartaric acid contained in jujube flesh can be used as western medicines while the vitamins content is effective in treating hypertension. In traditional Chinese medicine jujubes are primarily used to treat hepatitis. Additionally jujubes can lower blood lipids and cholesterol [9,10].

### **2.1.5 Codonopsis**

Codonopsis, sweet in taste and neutral in nature, is commonly used in medicine for conditions such as deficiency of the lung and spleen qi, poor appetite and fatigue, cough with weakness, insufficient qi and blood, pale complexion, palpitations with shortness of breath, thirst due to fluid damage, and internal heat consuming thirst. Jujube is a temperate crop with strong adaptability and a wide range of cultivation. Jujube, sweet in flavor and warm in nature, enters the spleen and stomach meridians, possessing effects such as tonifying the middle-jiao, nourishing blood, and calming the spirit. *Astragalus* primarily has the following effects: tonifying qi and consolidating the exterior, promoting diuresis and detoxification, expelling pus, and generating new flesh from sores. It is mainly used for conditions like qi deficiency and weakness, poor appetite with loose stools, sinking of the middle qi, chronic diarrhea with rectal prolapse, bleeding and metrorrhagia, and spontaneous sweating due to exterior deficiency [12-14].

### **2.1.6 Lotus seeds**

Lotus seeds are sweet, astringent, and neutral in nature. They enter the spleen, kidney, and heart meridians. Lotus seeds have the effects of benefiting the kidneys and consolidating essence, strengthening the spleen to stop diarrhea, and nourishing the heart to calm the spirit [15,16].

## **2.2 Overview of Xinjiang roasted chicken**

### **2.2.1 Introduction of chicken meat**

Chicken is the cheapest commercially produced meat globally [17], and it is also one of the main sources of protein in the daily diets of our country's residents. According to data from the National Bureau of Statistics, China's total chicken production in 2023 was 21.5236 million tons, an increase of 2.4069 million tons or 12.59% compared to 2022. Based on the current trend of chicken consumption growth, the domestic market demand for chicken continues to expand [18]. Compared to other red meats, chicken, as a white meat, has higher nutritional value. It contains low cholesterol, high protein, low fat, and is rich in polyunsaturated fatty acids, making it more aligned with the trend of healthy eating and increasingly favored by consumers. Chicken products can be categorized based on processing techniques into roasted chicken, fried chicken, braised chicken, steamed chicken, smoked chicken, etc.. In the production process of chicken products, different processing technologies endow them with unique appearance characteristics, flavor profiles, taste expressions, and textures, allowing these differences to meet the diverse needs of various consumers.

### **2.2.2 Application of roasting technology on chicken meat**

Roasting technology, as one of the main methods of chicken processing, has won widespread favor among consumers due to the tender and chewable texture, exquisite appearance, and bright color of its roasted chicken products. The popularity of roasted chicken is inseparable from its unique roasting flavor. In addition, the high content of free amino acids in the finished product gives it a delicious taste, while a high proportion of phospholipids and proteins endow roasted chicken with high nutritional value, making it both tasty and healthy [19]. In recent years, academic research has emerged on the quality characteristics and volatile flavor compounds of pork, duck and fish under different processing conditions [20]. However, the only study related to chicken was on the effect of marination conditions on the quality of lemongrass roasted chicken [21]. Yet, there are no reports on the potential impact of using different edible and medicinal herb seasoning packets on the flavor and quality of roasted chicken.

Roasting technology is a traditional cooking technique that uses heated air as a heat source, allowing hot air to fully contact and mix with the surface of the food being roasted. Through a sustained high-temperature baking process, the food's surface quickly becomes hard, giving it a unique crispy texture [22]. During the roasting process of chicken, based on the equipment and heating medium used, it can be divided into several methods, including charcoal roasting, electric roasting, gas roasting, steam roasting, and oil pouring [23]. Roasted chicken is beloved by consumers for its unique cooking effects. Chicken processed through roasting techniques is usually bright red in color, with a crispy and tasty skin, while the meat remains soft and juicy. This cooking method highlights the flavor characteristics of chicken, making it more delicious and appetizing. Therefore, roasting technology occupies an important position in the cooking of chicken products and has become one of the preferred cooking methods for consumers [24]. During the marination process of roasted chicken, white ginseng was added to the traditional formula. This innovative method significantly improved the chicken's ability to absorb salt, making the meat fresher and softer in texture. Additionally, the inclusion of white ginseng enhanced the overall flavor of the roasted chicken and increased its nutritional value, making this chicken product not only flavorful but also health-promoting. There were also researches on the roasting techniques and marinade ratios of traditional Orleans-style roasted chicken, using an electric oven to bake whole chickens and ultimately obtaining a roasted chicken product with a distinct Orleans flavor. Research was also conducted to deeply optimize and modify the traditional roasted chicken process. During the marination process, beer was added which gave the roasted chicken a rich beer aroma after cooking. Additionally, during the crucial roasting stage, he used maltose, honey, or yellow wine as coloring agents. After careful treatment, the skin of the roasted chicken presented an attractive date-red color, greatly enhancing the overall visual appeal of the roasted chicken.

## **III. CONCLUSION**

The research and development of medicine and food homology seasonings, through scientific formulation design, the medicine and food homology seasonings were integrated into modern diet. Its achievements have significantly enhanced the nutritional value and health care function of food, meeting the modern people's demand for a healthy diet, promoting a natural, green, and healthy lifestyle. Modern science and technology are used to systematically analyze the components of food-medicine co-sourced plants and seasonings, ensuring the effectiveness and safety of the products. By establishing standardized production processes and quality control systems, the quality and safety of the products are effectively improved, enhancing consumer confidence. This has promoted technological innovation in the medicine and food homology seasoning industry. The research results not only improve the quality of existing products but also drive the development of new products, promote industrial upgrading and sustainable development, and inject new vitality into the health industry. Its achievements have been widely applied in health foods, functional foods,

natural medicines, and other fields, promoting diversified development of the health industry and providing consumers with more health choices.

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