

## Formulation and Standardization of Cassia Auriculata Tea Powder

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**ABSTRACT:** Till date almost 3000 different medicinal plants in Indian sub-continent has found to great potential in the emerging field of herbal medicines. Among of them various parts of Cassia auriculata L. provide health and nutrition promoting compounds in human diet. The present review aims to compile formulation and standardization of Cassia auriculata tea powder. The tea powder was formulated and standardized with selected ingredients i.e. tulsi powder, cinnamon, dried ginger, ellaichi and jaggery in 3 different ratios (1:1, 2:1 and 3:1) and same with lemon compare with control i.e. green tea. The best combination was selected through the sensory evaluation by semi-trained panelists. The results showed that combination with Cassia auriculata tea powder along with lemon, ginger, tulsi powder, ellaichi, cinnamon, jaggery with 1:1 ratios was best acceptable than other combination with control due to their strong aroma and spiced flavor.

**Keywords:** Cassia auriculata flower powder, formulation and standardization of Cassia auriculata flower powder

### I. INTRODUCTION:

Nature is a treasure chest, endowed with rich wealth of medicinal plants which become a target for the search of many lead compounds that are biologically active and are important reservoirs which instilled the phyto-chemical researchers to explore and expand its potential. Medicinal plants were used for traditional treatments in curing numerous human diseases since thousands of years in many parts of the world. In rural areas of the developing countries, many plants are used as the primary source of medicine (Chitmeet al., 2003) and about 80 per cent of the population in

developing countries use traditional medicines for their healthcare (Kim et al., 2005).

Use of plants as a source of medicine was considered to be an important component of the health care system in India. The practice of employing plants as preventive and curative health care has been in use since the time immemorial not only in rural areas of the developing countries such as India, but also in developed countries as well. The World Health Organization (WHO) estimates that about 80 percent of the world's population use herbal medicines in all aspects of primary health care needs (Gurib-Fakin, 2006).

In recent years multiple drug/chemical resistance in both human and plant pathogenic microorganisms have been developed due to indiscriminate use of commercial antimicrobial drugs/chemical which was commonly used in the treatment of infectious diseases. In developing countries, residents of villages and native communities still use folk medicine towards the treatment of common infections (Subhadra Devi et al., 2011).

Cassia auriculata Linn. Commonly known as Tanner's Cassia is a wild and perennial plant. Ecologically it tolerates a wide range of climate and temperature. In Ayurveda, Naturopathy and Herbal therapy, this plant and its parts are being used traditionally for cure of various human diseases viz. liver toxicity, fungal and microbial infection, inflammation, pyrexia, constipation, conjunctivitis, skin diseases, rheumatism etc. The medicinal properties of C. auriculata are due to presence of hydroxyanthraquinone derivatives. This plant is the main constituent of Kalp Herbal Tea, which is widely used in remedy of diabetes (Khader et al., 2017).

Hence the present study was conducted and

formulated standardized Cassia auriculata tea powder.

## II. MATERIALS AND METHODS:

Cassia auriculata flowers procured from PJTSAU and open fields of villages in and around Hyderabad. Initially the selected flowers Cassia auriculata was properly cleaned and washed under tap water. Petals of the cassia auriculata flowers were blanched @ 2 min in little hot water to soften the petals. In blanching petals were heat treated at 85°C and brighten the color of petals. Then blanched petals were strained through stainless steel strainer. After that in cabinet dryer, blanched flowers (2 mins) was spread over perforated aluminum trays and dried using hot air at 55°C for 8-10hrs. In mixture machine, dried flowers were powdered.

The tea powder was formulated and standardized with selected ingredients i.e. tulsi powder,

cinnamon, dried ginger, ellaichi and jaggery in 3 different ratios (1:1, 2:1 and 3:1) and same with lemon.

A total of 18 no Cassia auriculata(Thangedu) tea was made with 6 formulations in three different ratios (1:1, 2:1, 3:1) using selected ingredients i.e. lemon, tulasi, dried ginger, cinnamon, ellaichi and jaggery individually and compare with control i.e. Green tea for standardization of Cassia auriculata(Thangedu) flowers powder. Prepared Cassia auriculata(Thangedu) tea (18 no) were subjected to sensory evaluation and assessed sensory quality characteristics using 9 point hedonic scale (Meilgaard et al. 1999). Among three ratios 1:1 ratio selected as a best accepted ratio among 6 formulations i.e. Cassia flower powder (CFP) + Lemon, Cassia flower powder (CFP) + Tulasi, Cassia flower powder (CFP) + Dried Ginger, Cassia flower powder (CFP) + Cinnamon, Cassia flower powder (CFP) + Ellaichi and Cassia flower powder (CFP) + Jaggery.



**CFP + Lemon (1:1, 2:1, 3:1)**



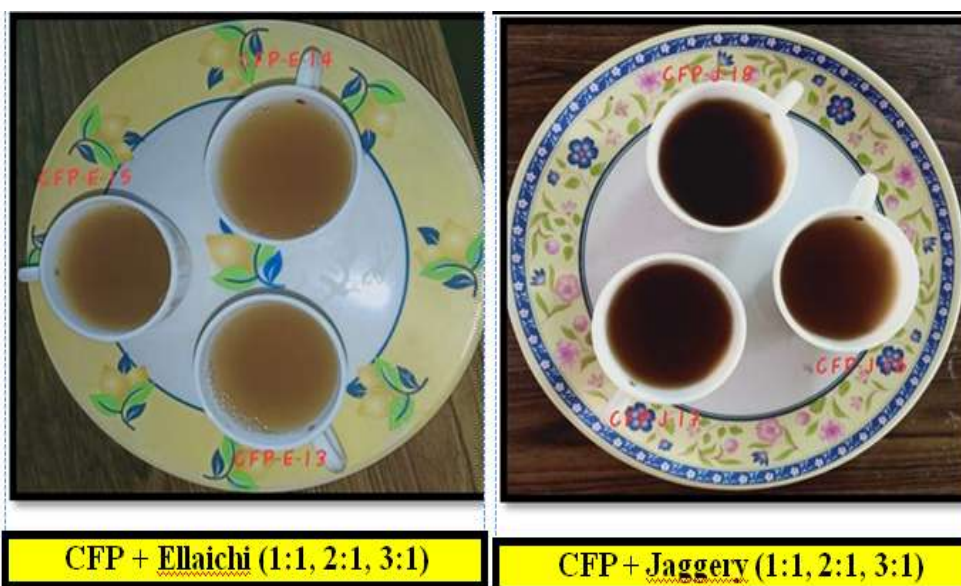
**CFP + Tulsi (1:1, 2:1, 3:1)**



**CFP + Cinnamon (1:1, 2:1, 3:1)**



**CFP + Dried Ginger (1:1, 2:1, 3:1)**



Standardization of Cassia auriculata tea

### III. RESULT AND DISCUSSION:

#### Sensory evaluation scores of tea prepared with Cassia auriculataflower tea powders with selected ingredients

Dried Cassia auriculataflower powder was used for formulation and standardization of different Cassia auriculataflower powders and the best accepted powder was analyzing sensory, nutritional and phyto chemical quality and antioxidant activity.

Sensory evaluation encompasses a set of techniques required for the precise measurements of human reactions to food stuff ultimately persuading the consumer perceptions. According to the Institute of Food Technologists (IFT), sensory evaluation involves the inspection of a product by the senses i.e. sight, smell, taste, touch and hearing for various quality attributes like appearance, flavor, aroma, texture and sound (Stone and Sidel 1993; IFT 2007). Sensory descriptive analysis involves the discrimination and description of both qualitative and quantitative sensory factors of products by trained panels (Meilgaard et al., 2016 and Murray et al., 2001). In the present study the sensory data was collected using a structured proforma for nine-point hedonic scale.

Cassia auriculataflower powder was standardized in combination with six ingredients i.e. lemon, tulasi, ginger, cinnamon, ellaichi, and jaggery (each at three different levels) viz. 1:1, 2:1 and 3:1 compare with control i.e. Green tea

The mean sensory scores of CFP-L-1 tea (1:1) were higher for color, appearance, taste,

flavor, texture and overall acceptability (7.33±0.667, 7.48± 0.68, 7.38±0.74, 7.19±0.60, 7.19±1.12 and 7.42±0.60 respectively) compare with control i.e. Green tea (6.45±1.15, 6.95±1.28, 6.80±1.28, 6.75±1.12, 6.90±1.41, 6.70±1.26). Statistically significant difference (p<0.05) was found for flavor, taste and for overall acceptability (p<0.01). These results were not in line with study conducted by Kuna et al., 2018; who revealed that addition of lemon powder (25%) improved the color of the beverages.

Whereas the tea prepared with CFP and tulasi, the mean sensory scores of CFP-T-3(1:1) variation for color, appearance, flavor, taste, texture and overall acceptability were 7.28±0.68, 7.20±0.90, 7.00±0.93, 7.30±0.88, 7.10±0.96 and 7.29±0.90 respectively, which were higher than other two variations i.e. CFP-T-4, CFP-T-5 and control i.e. green tea. Statistically significant difference at (p<0.05) was found only with respect to texture. Similar type of results were reported by Kumaret al., 2013 where addition of tulasi up to 3% level increased scores for all the sensory attributes and usage of tulsi at 4% and above level reported to lower the sensory scores.

When tea prepared with CFP and cinnamon compare with control i.e. green tea, statistically significant difference was found in taste (p<0.05) and in texture (p<0.01). It was found that CFP-C-7 (1:1) variation showed higher mean sensory scores than CFP-C-8, CFP-C-9 and control i.e. green tea. A study conducted by Vidanagamageet al., 2016, found that tea



incorporated with lower quantity of cinnamon (1%) was selected as the best accepted variation as it ranked higher for all sensory attributes.

Among tea prepared with CFP and ginger powder, the maximum sensory scores was found CFG-G-10(1:1) with variation in all sensory characteristics i.e. for color(7.40±0.60), appearance(7.45±0.69), flavor(7.30±0.73), taste(7.20±0.62), texture(7.15±1.12) and overall acceptability (7.35±0.67). Statistically significant difference was (p<0.01) observed in all sensory parameters. Jadhav et al., 2017 reported addition of least amount of ginger (2.5%) in milk shake gave typical flavour and improved the sensory quality

and was more acceptable by judges as compared to control (milk shake without addition of ginger juice) of other treatments.

Statistically significant difference (p<0.01) was found in color, appearance, flavor, taste and texture among tea prepared with ellaichi and CFP compare with control i.e green tea. CFP-E-13 had shown maximum sensory scores than CFP-E-14, CFP-E-15 and control i.e green tea.

While tea prepared with jaggery and CFP statistically significant difference (p<0.01) level was found in taste. CFP-J-16 showed maximum sensory scores among Cassia auriculata tea prepared with jaggery and control i.e green tea respectively.

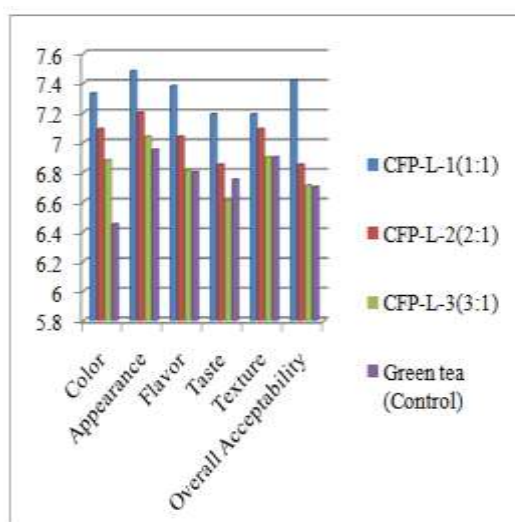


Figure 1 Mean sensory scores of tea prepared with C.A flowers powder with lemon compare with control

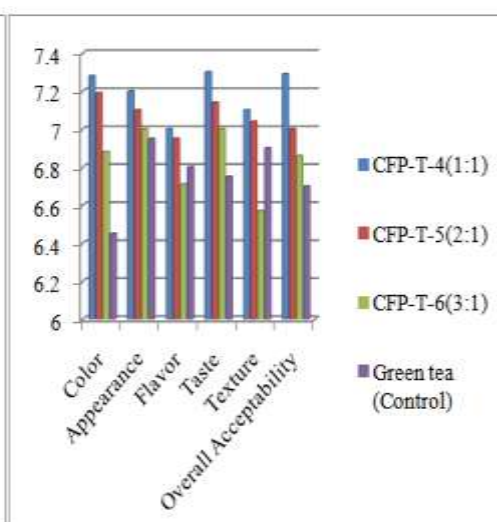


Figure 2 Mean sensory scores of tea prepared with C.A flowers powder with tulsi compare with control

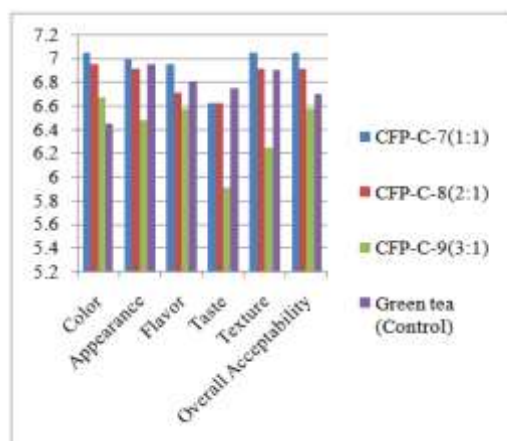


Figure 3 Mean sensory scores of tea prepared with C.A flowers powder with cinnamon compare with control

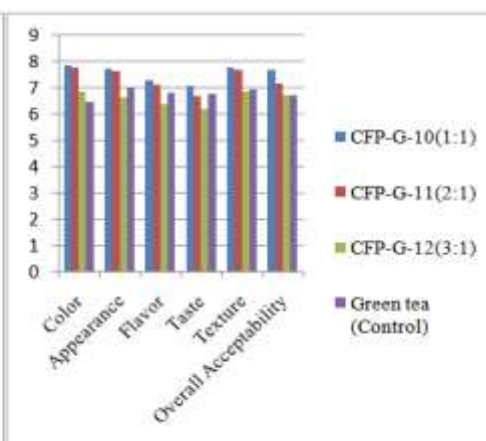
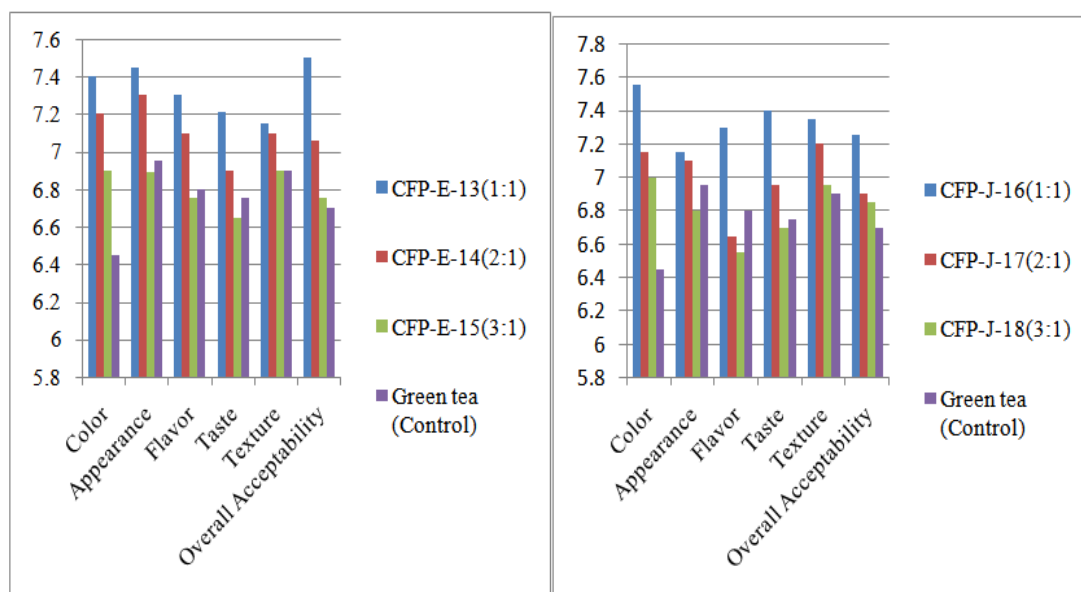


Figure 4 Mean sensory scores of tea prepared with C.A flowers powder with ginger compare with control



**Figure 5 Mean sensory scores of tea prepared with C.A flowers powder with ellaichi** **Figure 6 Mean sensory scores of tea prepared with C.A flowers powder with jaggery** compare with control

#### IV. CONCLUSION:

From the finding on formulation and standardization of cassia auriculata tea powder it can be concluded that The sensory scores of the tea prepared with Cassia auriculata flower powder (1:1) were superior to commercially available green tea which gives relief from ailments such as stomach-ache, cooling and refreshing effect to the mind and body

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