Value added products from green tea

Merina Benny
Arjuna Natural Extracts Ltd.
PB No. 126, Bank Road Aluva-683 101, Kerala, India
E-mail: merina@arjunanatural.com

Abstract

In order to protect the quality of green tea, it can be made into standardized extracts based on the active ingredients like polyphenols and epigallo-catechin gallate (EGCG), the major catechin. Value added products formulated from green tea extract form a new approach into the field of nutraceuticals. This increases the export potential as well as the sale in domestic markets. Value added products like organic green tea extract and green tea extract capsules developed by Arjuna Natural Extracts Ltd. have been included in this article for the interest of tea drinkers, researchers and entrepreneurs.

Keywords: Green tea extract, Green tea extract capsules, EGCG, Catechins.

IPC code; Int. cl.[7]**—** A23F 3/00, A23F 3/22, A23F 3/30, A61K 35/78

Tea is the most commonly used, cheap and refreshing beverage used in India. Both black and green tea is enjoyed by all groups of people. Green tea has been considered as a traditional tonic for keeping the body and mind normal. It is unfermented tea obtained from natural dried leaves of tea plant, ***Camellia sinensis* (Linn.) O. Kuntze**. Green tea is processed in such a way that the oxidation of the enzymes present in tea leaves is controlled or prevented.

Tea garden

Organic green tea raw material

Organic green tea extract

Green tea extract capsules

Important polyphenols of the green tea are flavanols which are known as catechins. Some catechins found in green tea are: Epigallocatechin gallate (EGCG), Epicatechin gallate (ECG), Epicatechin (EC) and Epigallocatechin (EGC). Green tea contains vitamin C at a range of 250- 290 mg/100g dried leaves (Chung *et al*; Copeland *et al*, 1998).

After realizing the importance of organic cultivation, tea gardens are also maintained organically which limits the presence of pesticides in green tea. The health benefits of green tea are more than black tea. It is powerful antioxidant, ideal for lipid management, act as blood thinner, effective anticancer agent, prevents atherosclerosis, decreases the risk of stroke, aids digestion, prevents dental cavities and plaque formation in teeth, activates neurotransmitters in brain, etc. To get complete benefits from green tea catechins, one needs to drink at least 10 to 15 cups a day. Moreover, the catechins vary from plant to plant, place to place and also on climatic and agro conditions. In order to prevent this variation, standardization of green tea is essential. Standardization can be done on the basis of the presence of active constituents like: total catechins and individual catechins. Most of the scientific reports have shown that the anti-oxidant property of green tea is mainly due to EGCG. Therefore, care should be taken during extraction process and drying process to prevent the conversion of EGCG into other catechins. Caffeine, an effective central nervous system stimulant is present in green tea extract at an average level of 3-5% (Alschuler, 1998; Katiyar & Mukhtar, 1997; You, 1993; Imai *et al,* 1997).

Value addition is an important step next to standardization. The standardized extract of green tea can be converted into capsules. If the green tea extract is used in capsules, it will minimize the consumption of bulk quantities of raw green tea and the bitter taste. Standardized green tea extract is found to be very effective for reducing obesity and abdominal fat in human volunteers (Chantre & Lairon, 2002).

These extracts can also be formulated by adding some vitamins or other herbal extracts like curcumin, ashwagandha, etc. to get the consumer friendly nutraceuticals which can be used as a curative/preventive preparation. The other advantage of standardized extracts is that the dosage can be defined. The average dosage of green tea extract is 500-1500 mg per day. For cancer preventive/ curative effects the dosages should be on higher range.

Green tea extract is also used in cosmetics especially in perfumes (green tea flavoured spray) and different types of creams. In Japan green tea icecreams, green tea chocolates, etc. are available in market. Incorporation of green tea extract in shampoos, face masks and ointments is also possible. It has been found very useful in preventing plaque formation and other diseases associated to gums and teeth when incorporated in tooth paste.

It can be concluded that value added products give better results and provide better handling. It also has better export potential.

References

1. Alschuler L, Green Tea: Healing tonic, *Am J Nat Med*, 1998, **5**, 28-31.
2. Chantre P and Lairon D, Recent findings for green tea extract AR 25 (Exolise) and its activity for the treatment of obesity, *Phytomedicine*, 2002, **9**, 3-8.
3. Chung S, Yang and Zhi-Yuen Wang, The chemistry of Tea, www.teatalk.com/science/chemistry.
4. Copeland El, Clifford MN and Williams CM, Preparation of epigallocatechin gallate from commercial green tea by caffeine precipitation and solvent partition, *Food Chem*, 1998, **61**, 81-87.
5. Imai K, Suga K and Nakachi K, Cancer preventive effects of drinking tea among a Japanese population, *Prev Med*, 1997, **26**(6), 769-775.
6. Katiyar SK and Mukhtar H, Tea antioxidants in cancer chemoprevention, *J Cell Biochem*, 1997, **27**, S68-S75.
7. You S, Study on feasibility of Chinese green tea polyphenols (CTP) for preventing dental caries, Chung Hua Kou Hsueh Tsa Chih, 1993, **28**, 197-199.

Tasty water

Hopefully in near future water will be tastier than what we drink today because several major beverage companies plan to begin selling flavoured water in the rapidly growing bottled water market. The Coca-Cola company will apparently sell two flavours of water namely lemon and raspberry under its Dasani brand. PepsiCo will introduce FlavorSplash and Aquafina Sparkling. FlavorSplash will come in raspberry, citrus blend and wild berry, while Aquafina Sparkling will be available in original, lemon lime and berry (http://www.beveragedaily.com/news/news-ng.asp?id=56827-water-to-be).