

Tea Diversification Products and Value Addition



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Abstract

This mini review focuses on the issues leading to the development of wide range of value added tea diversification products and the associated health benefits either as nutraceutical beverage or confectionary items or in the form of toiletries and cosmeceuticals being commercialized in different parts of the world that are gaining consumer acceptance and also a win over strategy to face the global marketing challenges by tea industries.

Keywords: Tea; Tea diversification products; Value added; Nutraceuticals; Tea industries

Introduction

Tea (*Camellia sinensis*), belonging to the family *Theaceae*, mostly widely consumed after water, is a popular refreshing beverage that is accepted worldwide and consumed in its different varieties (green tea, black tea, oolong tea, orthodox etc) in different parts of the world [1-4]. Tea industries and thus business in different parts of the world is mostly export oriented and has a vital contribution in the economy of tea producing countries [5-9]. Due to steady production of tea, the world market price of processed tea got stagnated with supplies being stable and escalating production costs with decreasing returns for the tea growers. With the launching of several health drinks, beverages with varied flavors, taste and health benefits so as to satisfy the versatile health promoting and organoleptic demands of the 21st century consumer market [10,11], its rather unsafe for tea industry with investment of whatever magnitude to focus on the sale of any particular variety of tea as it makes an industry vulnerable to market trends that can divert towards other parallel products.

This situation emphasizes the need for exploring alternative means by the tea industries of increasing profits from tea cultivation. Product diversification to capture the global market is a corporate strategy and tea diversification products with value addition are an important approach to obtain enhanced returns for the tea growers. Thus, diversification from bulk tea exportation to value added tea diversified products with well-defined marketing strategies adopted by the firms and

companies will be helpful to face the stiff competitive challenges in the world market [5-9].

Tea being a source of several pharmacologically active compounds which are actually the secondary metabolites viz. dietary polyphenols, powerful antioxidant the benzotropolone compounds e.g. different theaflavins, thearubigins, several tea catechins like epigallocatechin-3-gallate (EGCG), epigallocatechin (EGC), epicatechin-3-gallate (ECG), and epicatechin (EC), methyl xanthenes viz. caffeine, theobromine, theophylline, amino acids like L-theanine and thus exhibit a multitude of pharmacological actions and suggesting the multifaceted health benefits of tea [1-4,12]. Though of immense potencies, the bioaccessibility of these secondary metabolites on tea consumption is often sub-optimal to produce the desired response [1]. Polytherapy has gained popularity rather than monotherapy and is practiced widely both in evidence based complementary and integrative medicine, the fact supported by the wide availability of different combination formulations [13-15]. In this context value added tea diversified products can play a vital role and have already occupied a significant position in the nutraceuticals market of Japan, China and India.

Tea is a source of different types of catechins with health benefits like antioxidant, cholesterol lowering, anti diabetic, anti-obesity, cardioprotective etc. In Japan, along with the availability of catechin capsules (in different doses), green tea tablets, catechin and green tea extracts are widely used in as

ingredients in different cosmeceuticals like sunscreens, hair conditioners, foundations, moisturizing face masks, soaps etc. Tea based toothpaste or catechin gel are found to be effective against a wide range of Actinomyces, periodontopathic bacteria and Candida strains. Owing to cholesterol lowering and cardioprotective effect of catechins, poultry animals in Japan have been feed with tea and catechin enriched diet to develop the “catechin eggs” that are commercialized in Japan.

Catechin candy, green tea ice cream, catechin tea bar, matcha powder, vitamin fortified unsweetened high antioxidant enriched flavored catechin beverages are popular amongst the confectionaries serving the purpose of nutraceuticals [5,16]. Amongst the value-added tea diversified products commercialized in China include the green tea polyphenol-based products, tea saponin based products, theanine and tea polysaccharide added nutraceuticals, micro tea power as an ingredient in confectionaries, dental products and cosmetics [5,17,18]. Tea cola, tea toffee, tea ice cream, a wide range of herbal teas (tulsi tea, ginger tea, turmeric tea, cinnamon tea etc), tea wine, tea based confectionary products and cosmeceuticals have occupied significant places in Indian market [19,20].

Value added tea diversified products not only can help the tea industries to win over the competitive global market but also considering the health aspects, research evidences have shown that value addition in tea is found to potentiate its pharmacologic profile via synergistic effect amongst tea secondary metabolites and value added additives. Lemon Grass Tea is found to exhibit synergistic hypolipidemic effect in comparison to black tea alone [21]. Turmeric incorporated black tea is found to exert enhanced antihypertensive and neuroprotective effect with respect to black tea alone [22].

Thus value addition and product diversification in tea will not only be helpful for improving the profit margin from commercial aspects and consumer acceptance with a new outlook, flavor, taste and health benefits but simultaneously it is to be kept in mind that tea product diversification should really aid to synergistic value addition without hampering the original chemoprofile of tea and organoleptic acceptability amongst the consumer world.

Conclusion

Tea is a popular refreshing beverage with multidimensional health benefits. However, tea diversification with value added additives is found to exhibit synergistic health potentials in an evidence-based manner. Moreover, tea diversified products with worldwide consumer acceptance and commercial benefits have also opened new vistas in nutrotherapeutic research.

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