Global dispensary

Anxiolytic activity of hot water brew of Sri Lankan black tea (*Camellia sinensis* L.) in rats

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Abstract: Some reputed traditional practitioners of Sri Lanka claim that consumption of black tea brew/ infusion (BTB) of *Camellia sinensis* (L) O. Kuntze (Theaceae) suppresses anxiety. But this claim has not been scientifically tested and proven. This study therefore investigated the anxiolytic potential of BTB of *Camellia sinensis* (with Sri Lankan high grown Dust grade No 1 black tea) in rats using three models of anxiety (hole-board; neophobic suppression of eating and drinking tests). Different doses of BTB (equivalent to 1.5, 3, 9, and 24 cups; one cup = 170 mL) or a single (equivalent to 3 cups) of green tea brew (GTB) of Japanese or Chinese varieties or 2 mL of water were orally administered to different groups of rats and anxiolytic effects were determined. The results showed that BTB has anxiolytic action with swift onset (within 1 h) and no accompanying unwanted side effects: muscle relaxation, motor incoordination, sedation or sleep promotion. The anxiolytic effect of BTB was however inferior to GTB. Further, decaffeination of BTB did not impair its anxiolytic action indicating that anxiolysis was not mediated via caffeine. The anxiolytic action of BTB may be mediated mainly via L-thianine, amino acid (unique to tea) through GABA-ergic pathways. It is concluded that black tea has mild to moderate oral anxiolytic activity.

Key words: *Camellia sinensis*, black tea, anxiety, anxiolytic, dust grade tea, Sri Lankan tea

Introduction

Tea, an infusion/brew of dried tender terminal leaves and the bud of the plant *Camellia sinensis* (L) O. Kuntze (Theaceae), is the most widely consumed drink in the world besides water (Modder 2002). Depending on the manufacturing technique employed there are three main types of tea: black (fully aerated or fermented), green (non aerated or unfermented) and oolong (partially aerated or semi-fermented).

Several epidemiological, clinical and laboratory studies indicate that tea drinking, particularly the green teas, provides many health benefits including promotion of cardiovascular health, antioxidative, antiageing, anticarcinogenic, anti-inflammatory, antidiabetic, antibacterial, central nervous system stimulation, promotion of oral health (Modder 2002, Koo 2004), stress relieving and anxiolytic (Anonymus 2005). The anxiolytic activity is however scientifically proven only for green tea and this has been attributed to L-thianine, (γ-n-

ethyl glutamine, 3% w/w) one of the amino acids in green tea (Vokovic 2004).

It is well recognised now that L-thianine is also present more or less in the same proportion in Sri Lankan black tea as well (Modder 2002). However scientific evidence for anxiolytic properties of black tea by rigorous experimentation is quite limited although black tea accounts for about 78% of world tea production and about 80% of global tea consumption (Modder 2002). What is more, according to some reputed Sri Lankan traditional practitioners and herbalists consumption of 3-5 cups of warm black tea brew (BTB) helps to relieve anxiety but this claim has not been scientifically validated.

As such in this study we investigated the anxiolytic potential of black tea in rats, using Sri Lankan high grown Dust grade No.1 tea. The Dust grade was selected as it is most widely consumed by Sri Lankan tea drinkers probably because of its comparatively low price and easy availability.