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Effect of Sri Lankan black tea brew *(Camellia sinensis)* on hexabarbital induced sleep in mice

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Abstract

Present study examined the effect of warm black tea brew/ infusion (BTB) of *Camellia sinensis* (L.) O. Kuntze (family: Theaceae) on sleep. The above was tested in hexabarbital induced sleep model in mice using three doses (equivalent to 1.5. 3. and 9 cups. 1 cup 170 ml) of Sri Lankan high grown Dust grade No: 1 black tea or a single dose (equivalent to 9 cups) of green tea brew (GTB) of Japanese and Chinese varieties. The results showed that black tea brew (BTB) significantly ($P < 0.05$) and dose-dependently prolonged the onset and shortened the duration of sleep. A similar effect was elicited with the high dose of GTBs but with a higher efficacy. Decaffeination of BTB suppressed the effects on the onset of sleep induced by the normal BTB. It is concluded that Sri Lankan black tea disrupts sleep in mice possibly via dopaminergic, serotoninergic and nerve stimulant mechanisms.

Key words - *Camellia sinensis;* sleep; theanine; caffeine; tea; dust grade

1. Introduction

Tea which is prepared from the topmost immature leaves and buds of the perennial evergreen shrub *Camellia sinensis* (L.) O. Kuntz (Family: Theaceae) is the most widely consumed drink in the world, besides water (Modder and Amarakoon. 2002). Infact, it is one of the healthiest beverages today. Depending on the manufacturing technique there are three main types of teas: black (fully aerated or fermented), green (non aerated or unfermented) and oolong (partially aerated or semi fermented).

Of these types, black tea accounts for about 78% of world tea production and about 80% of global tea consumption (Modder and Amarakoon, 2002). However, the amount of research done on black tea, especially, on its bioactivity is limited compared to green tea which is consumed only by about 16% of the world population (Ho, et al., 2005). Regrettably, very little research has been done on bioactivity of Sri Lankan black tea although Sri Lanka is the second most major tea producing country in the world (Anonymous, 2006). Hence, it is reasonable to focus more efforts on health effects of Sri Lankan tea. Further, it is known that several factors such as country of origin, geological background of soil, the