ANTI-CANDIDA ACTIVITY OF CATECHINS ISOLATED FROM FRESH TEA FLUSH, MATURE TEA LEAVES AND GREEN TEA

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Introduction

Candida albicans plays an important role in candidosis, denture stomatitis, periodontitis, vulvovaginitis and candidemia. The proportion of infections due to other *Candida* species such as *C. parapsilosis*, *C. glabrata* and *C. guilliermondii* is also significant (Pfaller *et al.*, 1998). The toxic effects of antimycotics used in the treatment of *Candida* infections and the appearance of antimycotic-resistant *Candida* strains point to the need for developing highly effective and safe alternatives to conventional antimycotics (Hirasawa *et al.*, 2004). Previous studies reveal that catechins present in green tea (Hirasawa *et al.*, 2004) and black tea (Sitheeque *et al.*, 2009) have anti-Candida properties; tea (*Camellia sinensis*) is consumed worldwide and is a major export crop in Sri Lanka. We describe here the isolation of catechins from fresh tea flush, mature tea leaves, green tea and green tea dust and evaluation of their anti-Candida activity against six *Candida* species.

Materials and Methods

Tea flush was collected from the tea estate of the Tea Research Institute at Upper Hanthane (TRI 2023, TRI 2025). Two green tea samples were obtained from Stassen Exports Ltd. (Stassen green tea-large leaves, green tea dust-powder form). Clinical isolates of six Candida species (*C. albicans, C. sake*, *C. guilleiermondi*, C. dublinensis, *C. rugosa*, and *C. parapsilosis*) were obtained from the culture collection of the Faculty of Dental Sciences, University of Peradeniya.

Crude catechin mixture (CCM) was isolated by separately extracting fresh tea flush (TF), mature tea leaves (ML), Stassen green tea leaves (GL) and green tea dust (GD) with 70 % aqueous methanol followed by partitioning the methanol extract with dichloromethane and then with ethyl acetate. Ethyl acetate extract from each tea sample was concentrated and freeze-dried to obtain CCM-TF, CCM-ML, CCM-GL and CCM-GD. CCM-TF was fractionated using high speed counter-current chromatography to obtain epigallocatechin gallate (EGCG) at a solvent pumping rate of 1.5 mL min^{-1} and a centrifugation of 800 rpm for 5 h on head-to-tail mode and 3 h on tail-to-head mode.

Agar well diffusion assay was performed to determine the anti-Candida activity of catechins; well diameter was 9 mm. Cell suspensions