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Gastric ulcer healing activity of Sri Lankan black tea (*Camellia sinensis* L.) in rats

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Abstract

This study examined the gastric ulcer healing potential of black tea (*Camellia sinensis*) using Sri Lankan high grown Dust grade No: 1 black tea in rat acetic acid-induced gastric ulcer model. Three oral doses (84, 167 or 501 mg/ml) of black tea brew (BTB) made according to ISO recommendations were used in the evaluation of gastric ulcer healing activity. The results showed a significant ( $P < 0.05$ ) and dose-dependent gastric ulcer healing activity (in terms of reduction in gastric ulcer area). This effect had a rapid onset (within 14 days). The gastric ulcer healing activity of BTB was however inferior (by 9 fold) to omeprazole, the reference drug. BTB displayed *in vitro* antioxidant activity (using DPPH assay; by 2985-3923 Trolox equivalents  $\mu\text{g/l}$ ), and also inhibited *in vitro* nitric oxide production (3-78 %). In addition, BTB had antihistamine activity (by wheal test; by 33.5%) and increased the gastric pH (from 3.3 to 5.9) and impaired the gastric acid output (by 69%). It is concluded that black tea possessed strong, oral gastric ulcer healing activity which is mediated via multiple mechanisms.

**Keywords:** Black tea, *Camellia sinensis*, Gastric ulcer healing

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### Introduction

Tea is the second most consumed beverage in the world<sup>[1]</sup>. It is made from freshly harvested tender shoots, comprising two or three topmost immature leaves and buds of *Camellia sinensis* L. (Family: Theaceae) plant. Depending on the manufacturing technique there are three main types of teas: black (fully aerated or fermented), green (un-aerated or unfermented) and oolong (partially aerated or semi-fermented). Of these, black tea accounts for about 78% of world tea production and about 80% global tea consumption<sup>[1]</sup>.

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