

Author: Florence Malongane

Topic: Food and nutrition security

Title: Anti- Oxidant and Anti – Inflammatory activities of *Athrixia phylicoides* blended with commercially and non-commercially herbal teas.

Presentation Type: Oral

Introduction

Oxidative stress and inflammation is a known risk factor in the pathogenesis of conditions such as diabetes mellitus, and cardiovascular diseases. Different teas and herbs have various bioactive constituents with different anti-oxidant and anti-inflammatory activities. When taken together, the mixtures could yield a synergistic effect or potentiate the effect of another. The aim of the study was to determine the synergistic effect of bush tea with commercial or non-commercial herbal teas in reducing the activities of the pro-inflammatory enzymes and increasing anti-oxidant activities.

Method

The anti-inflammatory activities of the extracts were determined by measuring the inhibitory effect of the extracts on the activities of the pro-inflammatory enzyme, lipoxygenase. The antioxidant activities of methanol:dicloromethane (1:1 v/v) and water extracts were determined by measuring the free radical scavenging activity using the 2,2-diphenyl-1-picrylhydrazyl (DPPH) method.

Results

Water extracts of Chamomile tea had good antioxidant activity with IC₅₀ values of 65.53 µg/mL, followed by *Monsonia burkeana* with IC₅₀ of 74.86 µg/mL compared to that of the positive control ascorbic acid (91.25 µg/mL). The metabolism of linoleic acid to leukotriene derivatives by 15-lipoxygenase (15-LOX) was not effectively inhibited by both crude water extracts and methanol:dicloromethane extracts of selected teas except for water extract of combined *Monsonia burkeana* and *Athrixia phylicoides* (IC₅₀ = 79.10 µg/mL).

Conclusion

Monsonia burkeana is an indigenous herbal tea that has shown anti-oxidant properties and its combination with *Athrixia phylicoides* was the only combination found to inhibit

pro-inflammatory enzyme, lipoxygenase. The results strengthen the need to explore South African indigenous teas.