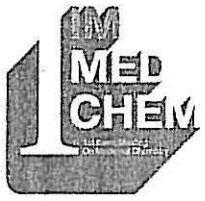

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Program and Abstracts

P1

Reactive nitrogen species scavenging by tronchuda cabbage

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The role of reactive nitrogen species (RNS), such as nitric oxide (NO) and peroxynitrite ($ONOO^-$), in several physiological processes has been well recognized, which include blood pressure control, neural signal transduction, platelet function, and antimicrobial defence.[1-3] Many pathophysiological processes, including reperfusion or ischemic tissue, acute inflammation and sepsis, might initiate events that stimulate NO production.[1] Nitric oxide is produced in various cell types by nitric oxide synthases and reacts rapidly with superoxide to form peroxynitrite. An overproduction of these RNS is associated with several types of biological damage. Deleterious effects include lipids peroxidation, protein oxidation and nitration, enzymes inactivation and DNA damage,[4, 5] which lead to chronic inflammation, cardiovascular diseases, Parkinson's and Alzheimer's diseases and several types of cancer.[6-8] Scavengers of RNS, especially those from exogenous sources, may play a pivotal role in preventing/controlling degenerative diseases. Antioxidants must react with reactive species faster than biological substrates, thus protecting biological targets from oxidative damage.

The ability of processed tronchuda cabbage (*Brassica oleracea* L. var. *costata* DC) to act as a scavenger of NO and $ONOO^-$ was investigated in *in vitro* systems. Nitric oxide was produced by sodium nitroprusside and the scavenging ability was accessed by measuring nitrite accumulation. Peroxynitrite was synthesized in the reaction of nitrite with acidified hydrogen peroxide, followed by a base quench. The scavenging capacity was accomplished by monitoring the formation of 3-nitrotyrosine.

The aqueous extracts obtained from tronchuda cabbage seeds and from its external and internal leaves exhibited a concentration dependent scavenging capacity (Figure 1). The antioxidant potential observed against the two reactive species was as follows: seeds > external leaves > internal leaves. In order to establish a possible correlation with the chemical composition of the extracts the activity of ascorbic and sinapic acids and kaempferol 3-*O*-rutinoside was also studied. Among the compounds tested sinapic acid showed the strongest antioxidant activity against both species.

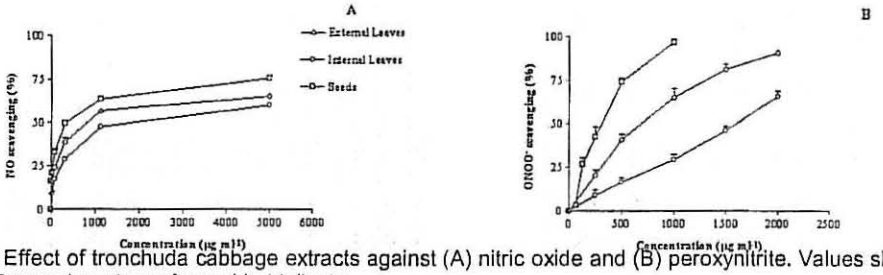

Figure 1. Effect of tronchuda cabbage extracts against (A) nitric oxide and (B) peroxynitrite. Values show mean + SE from 3 experiments performed in triplicate.

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