

## **INFLUENCE OF THE WATER EXTRACTED ARABINO GALACTAN FROM SOLANUM XANTHOCARPUM ON THE COUGH REFLEX**

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*Solanum xanthocarpum* L. is a medicinal plant traditionally used for the management of fever, bronchial asthma and cough in Ayurvedic medicine. In our previous studies we demonstrated that many herbal polysaccharides possess antitussive activity with minimal adverse effects. Herein, we used a traditional aqueous extraction for isolation of polysaccharide from leaves of *S. xanthocarpum* and analysed its effect on cough reflex and other defensive reflexes of the airways. Water extracted polymer (WE<sub>p</sub>) underwent chemical, chromatographic and spectroscopic analysis. Structural analysis revealed WE<sub>p</sub> is a highly branched arabinogalactan containing (1,3)-, (1,6)- and (1,3,6)-linked  $\beta$ -Gal residues, terminal (1,5)- and (1,3,5)-linked units of  $\alpha$ -Ara together with (1,2)- and (1,2,4)-linked Rha. Antitussive activity was followed by measuring the number of cough efforts induced by inhalation of citric acid in adult healthy awaken guinea pigs. *In vivo* investigations showed that the antitussive activity of the orally administered pectic arabinogalactan is higher than codeine. Remarkably, this macromolecule neither altered specific airway resistance significantly nor showed any serious side reactions. Thus, the traditional aqueous extraction method provides a molecular entity, which induces a pharmacological effect without addiction: this could represent an attractive approach in phytotherapeutic management.

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