

Asthma, respiratory allergy and cough

Cough Reflex Influenced By Polysaccharides from the Bark of *Terminalia Arjuna*

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In the present paper we prepared water extract (TA-WE) from the stem bark of *Terminalia arjuna* (Roxb.) Wt. and Arn.. The addition of acetone to the water extract brought acetone precipitated fraction (TA-F1) and acetone soluble fraction (TA-F2) of the water extract.

The antitussive activity of these samples was evaluated on an established test system with healthy guinea pigs, in which cough is evoked by inhalation of citric acid ($c=0,3$ mol/L) in the bodyplethysmograph. Tested samples were administered to animals perorally in the dose 50 mg.kg^{-1} b.w.. Both the crude water extract (TA-WE) and acetone precipitated fraction (TA-F1) showed significant ability to decrease the number of cough efforts. The total antitussive activity of TA-WE expressed in percentage even exceed the activity of codeine phosphate administered in the dose 10 mg.kg^{-1} b.w., which was used as positive control (64% vs 62%). Acetone insoluble fraction TA-F1 containing polysaccharides showed also very high ability to suppress the cough, exhibiting total antitussive activity only slightly lower than codeine phosphate (55%). Contrarily, acetone soluble fraction of water extract TA-F2 showed only negligible antitussive activity. Our experiments also showed none of tested samples has significant influence on the reactivity of the smooth muscles in airways.

These results support our previous findings that some naturally occurring water extractable polysaccharides possess remarkable antitussive activity without serious adverse reactions. Testing cough suppressive activity in extracts after treatment with acetone confirmed that the antitussive activity is linked to the presence of polysaccharides.