

Plant derived histidine decarboxylase inhibitor and H₁ antihistamine treatment for atopic dermatitis

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Histidine decarboxylase is a key determinant of the levels of endogenous histamine that play important pathophysiological roles in allergic diseases. Inhibition of histamine synthesis by combination of H₁ receptor antagonist and plant derived histidine decarboxylase inhibitor catechin can be a potential strategy to reduce the side effect of H₁ antagonists. Atopic dermatitis was induced by challenge with 2,4-dinitrofluorobenzene in mice. Evaluation of parameters like clinical scoring, ear weight, vascular permeability, histamine release from mast cell, skin histamine content, histidine decarboxylase enzyme activity, gene expression, histopathology and CNS safety parameters in catechin, cetirizine and combination groups were carried out. All treatment groups showed significant decrease in clinical score, ear weight, vascular permeability, enzyme activity, histamine release from mast cells and skin histamine content. Further, catechin alone and combination group showed beneficial effects in gene expression and histopathology study with reduced side effect. Thus, combination will allow the development of a new strategy using regulation of histamine production and antagonism of H₁ receptor with reduced side effect.

Keywords: Catechin, Cetirizine, Histidine decarboxylase, 2,4-dinitrofluorobenzene, Atopic dermatitis, Histamine release, Vascular permeability, Ear weight, Clinical scoring, Histidine decarboxylase enzyme activity, Gene expression, Histopathology, CNS safety parameters.