

Amla Abstracts

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Immunomodulatory effects of agents of plant origin.

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The immunomodulatory properties of amla (*Emblica officinalis*) and shankpushpi (*Evolvulus alsinoides*) were evaluated in adjuvant induced arthritic (AIA) rat model. Injecting Complete Freund's Adjuvant (CFA) in right hind paw of the animals induced inflammation. The crude extracts of both the herbs were administered intraperitoneally following a repeated treatment profile. The anti-inflammatory response of both the extracts was determined by lymphocyte proliferation activity and histopathological severity of synovial hyperplasia. Both the extracts showed a marked reduction in inflammation and edema. At cellular level immunosuppression occurred during the early phase of the disease. There was mild synovial hyperplasia and infiltration of few mononuclear cells in amla or shankpushpi treated animals. The induction of nitric oxide synthase (NOS) was significantly decreased in treated animals as compared to controls. These observations suggest that both the herbal extracts caused immunosuppression in AIA rats, indicating that they may provide an alternative approach to the treatment of arthritis.

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Cyto-protective and immunomodulating properties of Amla (*Emblica officinalis*) on lymphocytes: an in-vitro study.

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The fruits extracts of *Emblica officinalis* (Amla) has been reported to have strong anti-oxidant properties. There is a paucity of studies on the immunomodulatory properties of fruit extracts of Amla in immuno-compromised states, with the emphasis on lymphocytes. Therefore, the aim of the study was to determine the anti-oxidant and immunomodulatory properties of Amla using chromium (VI) as an immunosuppressive agent. Chromium (Cr) treatment results in enhanced cytotoxicity, free radical production, lipid peroxidation and decreased glutathione peroxidase (GPx) activity and diminished glutathione (GSH) levels. There was a significant inhibition of both lipopolysaccharide and concanavalin-A-stimulated lymphocyte proliferation. Chromium also inhibited Con A stimulated interleukin-2 and gamma-interferon production significantly. Further, there was enhanced apoptosis and DNA fragmentation in the presence of Cr. Amla significantly inhibited Cr-induced free radical production and restored the anti-oxidant status back to control level. Amla also inhibited apoptosis and DNA fragmentation induced by Cr. Interestingly, Amla relieved the immunosuppressive effects of Cr on lymphocyte proliferation and even restored the IL-2 and gamma-IFN production considerably.

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