

The effect of herbal remedies on the production of human inflammatory and anti-inflammatory cytokines.

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BACKGROUND: Some herbal remedies are sold as food additives and are believed to have immune-enhancing properties. **OBJECTIVES:** To study the effect of five herbal remedies--Sambucol Black Elderberry Extract, Sambucol Active Defense Formula and Sambucol for Kids (with known antiviral properties), Protec and Chizukit N (containing propolis and Echinacea, claimed to be immune enhancers)--on the production of cytokines, one of the main components of the immune system.

METHODS: The production of four inflammatory cytokines (interleukin-1 beta, tumor necrosis factor alpha, and IL-6 and IL-8) and one anti-inflammatory cytokine (IL-10) was tested using blood-derived monocytes from 12 healthy donors.

RESULTS: The Sambucol preparations increased the production of five cytokines (1.3-6.2 fold) compared to the control. Protec induced only a moderate production of IL-8 (1.6 fold) and IL-10 (2.3 fold) while Chizukit N caused only a moderate increase in IL-10 production (1.4 fold). Both Protec and Chizukit N caused moderate decreases in IL-1 beta, TNF alpha and IL-6 production. Lipopolysaccharide, a known activator of monocytes, induced the highest levels of cytokine production (3.6-10.7 fold).

CONCLUSIONS: The three Sambucol formulations activate the healthy immune system by increasing inflammatory and anti-inflammatory cytokines production, while the effect of Protec and Chizukit N is much less. Sambucol could therefore have immunostimulatory properties when administered to patients suffering from influenza (as shown before), or immunodepressed cancer or AIDS patients who are receiving chemotherapy or other treatments.