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Modulation of cytokine expression by traditional medicines: a review of herbal immunomodulators

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Abstract

Modulation of cytokine secretion may offer novel approaches in the treatment of a variety of diseases. One strategy in the modulation of cytokine expression may be through the use of herbal medicines. A class of herbal medicines, known as immunomodulators, alters the activity of immune function through the dynamic regulation of informational molecules such as cytokines. This may offer an explanation of the effects of herbs on the immune system and other tissues. For this informal review, the authors surveyed the primary literature on medicinal plants and their effects on cytokine expression, taking special care to analyze research that utilized the multi-component extracts equivalent to or similar to what are used in traditional medicine, clinical phytotherapy, or in the marketplace.

Methodology: MEDLINE, EBSCO, and BIOSIS were used to identify research on botanical medicines, in whole or standardized form, that act on cytokine activity through different models, i.e., in vivo (human and animal), ex vivo, or in vitro.

Results: Many medicinal plant extracts had effects on at least one cytokine. The most frequently studied cytokines were IL-1, IL-6, TNF, and IFN. *Acalypha wilkesiana*, *Acanthopanax gracilistylus*, *Allium sativum*, *Ananus comosus*, *Cissampelos sympodialis*, *Coriolus versicolor*, *Curcuma longa*, *Echinacea purpurea*, *Grifola frondosa*, *Harpagophytum procumbens*, *Panax ginseng*, *Polygala tenuifolia*, *Poria cocos*, *Silybum marianum*, *Smilax glabra*, *Tinospora cordifolia*, *Uncaria tomentosa*, and *Withania somnifera* demonstrate modulation of multiple cytokines.

Conclusion: The in vitro and in vivo research demonstrates that the reviewed botanical medicines modulate the secretion of multiple cytokines. The reported therapeutic success of these plants by traditional cultures and modern clinicians may be partially due to their effects on cytokines.

Phytotherapy offers a potential therapeutic modality for the treatment of many differing conditions involving cytokines. Given the activity demonstrated by many of the reviewed herbal medicines and the increasing awareness of the broad-spectrum effects of cytokines on autoimmune conditions and chronic degenerative processes, further study of phytotherapy for cytokine-related diseases and syndromes is warranted.

LinkOut – more resources

Other Literature Sources

[The Lens - Patent Citations](#)

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[MedlinePlus Health Information](#)