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Medicinal plants as an alternative to non-steroidal anti-inflammatory drugs

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Inflammation is a bodily response to infection, injury or destruction, characterised by redness, swelling, heat, pain and other disordered physiological functions. The production of auto-antigens in many arthritic diseases is due to the in vivo denaturation of proteins. The mechanism of denaturation involves alteration in electrostatic, hydrophobic, hydrogen and disulphide bonding. Therefore, controlling the production of auto-antigen and inhibiting the denaturation of proteins in rheumatic diseases leads to anti-inflammatory activity.

The commonly used drugs for the management of inflammatory conditions are non-steroidal anti-inflammatory drugs (NSAIDs). However, NSAIDs have several adverse effects, such as gastric irritation, heartburn, stomach ulcers, headaches, etc. Due to such adverse effects, other alternatives seem to be beneficial and necessary.

Medicinal plants have a large variety of chemicals, such as curcumin, resveratrol, capsaicin, quercetin, etc. from which novel anti-inflammatory agents can be discovered. These plants do not have any notable adverse side effects. Research on the various biological activities of plants during the past two centuries has given many compounds for the development of modern drugs.

Withania somnifera (ashwagandha) is a plant that is widely used for its effectiveness in treating several diseases, such as neurodegenerative diseases, amnesia, cancer, anxiety, etc. The plant is reported to show antiepileptic, vasoconstrictor, sedative and anti-inflammatory activities. Another plant called Bacopa monnieri or brahmi has also been reported to show anti-inflammatory activity.

Therefore, further research on these plants and their herbal preparations for inhibiting protein denaturation can serve as promising alternatives to conventional NSAIDs.

Keywords: Inflammation, Anti-inflammatory, Non-steroidal anti-inflammatory drugs, Ashwagandha, Brahmi, Auto-antigens

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