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Anti - inflammatory activity of medicinal plants native to Jammu and Kashmir: A review

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Abstract

Inflammation is part of the body's immune response. There can be four primary indicators of inflammation: pain, redness, heat or warmth and swelling. Plants have the ability to synthesize a wide variety of phytochemical compounds as secondary metabolites which shows anti-inflammatory activity. Herbal medicines are important remedies in therapeutics for treatment of various diseases in India. The traditional health care system of India is Ayurveda [Ayus – Life, Veda – Knowledge, meaning – science of life] and it is one of the oldest therapeutic systems. India, with its great biodiversity, has a tremendous potential and advantage in the emerging field of herbal medicines. Medicinal plants as a group comprise approximately 7500 species and include representatives of about 17,000 species of higher flowering plants. Use of natural product in the developments of drugs used in contemporary medicine is unsurpassed even when synthetic chemistry has been developed beyond expectations. Unlike synthetic substances the natural drug dose not gives symptomatic relief rather it provide complete cure of many diseases. Due to these salient feature herbal drugs has been realized seriously using all around the world. These day plant and their parts are extremely using in the treatment of various diseases such as respiratory problems, gastro-intestinal disorder, cardiac disease metabolic disorder and aging related problem. In this overview the medicinal plants reported to have anti-inflammatory activity available in Jammu and Kashmir.

Keywords: Anti-inflammatory, inflammation, natural, cure, plant

Introduction

Inflammation is a severe response by living tissue to any kind of injury. There can be four primary indicators of inflammation: pain, redness, heat or warmth and swelling. When there is injury to any part of the human body, the arterioles in the encircling tissue dilate. This gives a raised blood circulation towards the area (redness) (Burke *et al.*, 2005) [3]. Vasoactive chemicals also increase the permeability (increase pore size) of these arterioles which allows blood cells, chemical substance, blood proteins and fluid to accumulate in that region. This fluid accumulation causes swelling and may compress nerves in the area resulting in pain. In addition, prostaglandins, that might also result in 'irritation' of the nerves and further contribute to pain. Most people who take anti-inflammatory drugs have no side-effects, or only minor types. When taken appropriately, the advantage usually far outweighs the possible harms. In particular many people have a short course of an anti-inflammatory for all sorts of painful conditions. However, side-effects, and also occasionally very severe possible adverse effects, can occur. There are a number of anti-inflammatory herbs that could help to achieve similar results without the harmful effect (Burke *et al.*, 2005) [4].

Table 1: Jammu and Kashmir medicinal plants

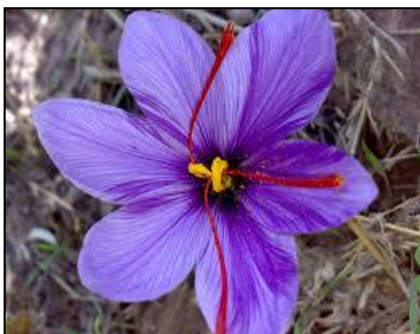
S. no	Plant	Traditional use	Scientific name	Family
01	Kaambul	Anti-diabetic, anti-cancerous	<i>Solanum nigrum</i>	Solanaceae
02	Kung	Anti-inflammatory, Carminative, Anti-fungal, antibacterial.	<i>Crocus Sativus</i>	Iridaceae
03	Wanwangun	Skin diseases, gynecological infections.	<i>Podophyllum peltatum</i>	Berberidaceae
04	Tethwan	Fever, inflammation, malaria	<i>Artemisia annua</i>	Asteraceae
05	Meth	Anti-diabetic, aiding digestion	<i>Trigonella foenum-graecum</i>	Fabaceae

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Solanum nigrum



Crocus Sativus



Podophyllum peltatum



Artemisia annua



Trigonella foenum graecum

Description

Despite the progresses in modern medicine, it has been reported that more than 70% of the developing world's population still depends on complementary and alternative systems of medicine, otherwise known as traditional medicine (Shaikh *et al.*, 2005) [2]. Some herbs possess anti-inflammatory properties and have the ability to reduce both internal and external swelling and inflammation. Herbal drugs have gained importance and popularity in recent years because of their safety, efficacy and cost effectiveness. In Jammu and Kashmir there are several indigenous medicinal plants available that have anti-inflammatory capabilities. Lists of these medicinal plants are given in table 1.

Conclusion

The advancement of allopathic medication shifted scientific and general people's interest from conventional medicinal preparations. However, in recent years, a significant paradigm change has taken place. Attraction has re-focused in traditional medicine, simply because of the higher cost of modern drugs, time and expenditure which is essential to bring a drug to market after proper clinical tests, severe side-effects of a variety of modern drugs, and drug-resistance developing in both microorganisms and parasites. So, researchers are currently taking an active interest in traditional medicinal preparations of native peoples, which are plant based. In recent years researcher are working on anti-inflammatory plants. Inflammatory diseases are common in the aging society of developed and developing countries; yet, the drugs used to combat inflammatory diseases like rheumatoid arthritis often have serious side-effects. Several leads from plant sources, like curcumin, resveratrol, baicalein, boswellic acid, betulinic acid, ursolic acid and oleanolic acid are now studied as possible drugs for the future against inflammatory (Gautam *et al.* 2009) [1]. This review will help the

recent and future researchers in their research work as they could select the anti-inflammatory medicinal plants from which they can isolate active constituents by using various separation techniques. These types of research works may unveil some new molecules which help us to fight against inflammatory disorders. Most of the researchers concluded their study by mentioning that the anti-inflammatory activity may be due to inhibition of the enzyme cyclooxygenase leading to inhibition of prostaglandin synthesis. But more extensive study could be conducted to determine exact mechanism (s) of action.

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