Analysis and standardization of plant drug (*Aconitum violaceum and Angelica glauca*) chemical markers for quality assurance validation their Anti-inflammatory, immunomodulatory, antioxidant, enzyme inhibition and toxicity testing.

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**Inflammation** is a local response of living tissue to injury. It is a body defense reaction in order to eliminate or limit the spread of injurious agent. There are various components of an inflammatory reaction that can contribute to the associated symptoms and tissue injury. Edema formation, leukocyte infiltration and granuloma formation represents such components of inflammation[1]. It is believed that anti-inflammatory drugs such as opiates and non-steroidal inflammatory drugs are not useful in all cases, because of their side effects and potency[2]. As a result, search for other alternatives seems necessary and beneficial. Anti-inflammatory agents from plants have unexplored potential.

**Immunostimulants** or immunomodulators are drugs which enhance immune responses and can be used for the prevention or cure of some infective conditions and also in the management of cancers. Immunomodulators decrease tissue inflammation by reducing the population of immune cells and/or by interfering with their production of proteins that promote immune activation and inflammation.

Some Immunomodulators include corticosteroids, cytotoxic agents, thymosin, and immunoglobulins. Some Immunomodulators are naturally present in the body, and certain of these are available in pharmacologic preparations. Many botanical species have reported the immunomodulator activity[3].

**Aconitum violaceum Jacq. Monkshood Ranunculaceae Root**

*Aconitum violaceum* Jacq., member of family Ranunculaceae is an important medicinal plant. Pertinent in subalpine and alpine areas of Himalayan Region (HR) at 3,500–4,000 m elevations, the plant shares its position with threatened plant species of HR.

**Ethnobotanical uses:** Tubers used to treat fever, gout, rheumatism and pain in body
Tonic, antiperiodic, vomiting, appetizer, astringent, anthelmintic, diarrhea, gastric pain, Stomach ache and cure cold[4]

Aconitum violaceum Jacq. is an important medicinal species used for various health ailments including renal pain, rheumatism and high fever.
Aconitum species are the rich sources of diterpene alkaloids and flavonoids. It also consists of free fatty acids and polysaccharides. The alkaloids present in this herb are toxic, which can easily turn into less toxic alkaloids by heating or alkaline treatment through deacetylation, debenzylation or oxidation. After detoxification, the alkaloids are used in Ayurvedic and Unani medicines. Tubers of the plant are the natural source of alkaloid aconitine, a neurotoxin which attributes to the medicinal properties of the plant. The crude extract of underground parts possess antipyretic and analgesic properties and traditionally been used in renal pain, rheumatism, high fever, allergy, boils, cuts, wounds, edema, treatment of snake and scorpion bites, contagious infections, disorder of gall bladder and inflammation of the intestines[5-9]. The tubers are also used for tonsillitis, sore throat, gastritis, debility, antioxidative and anti-inflammatory [10]. Recently, the anti proliferative activity of the isolated alkaloids of Aconitum, were evaluated against human tumor cell lines, ovarian and colon adenocarcinoma [11].

**Angelica glauca Edgew. (Apiaceae)**

Vernacular names: Angelica (E), Chora (H), Choraka, Chorakaa, Kopanaa, Chorakaakhya, Nishaachara, Dhanhar, Taskara, Kshemaka.

Angelica glauca Edgew (Umbelliferae) is a large annual or biennial smooth wild herb with pinnate leave and branched aromatic roots. It is widely distributed in the northern areas of Pakistan at the elevation of 8000 to 11,000 feet, including Swart, Kagan, Hunza, and Kashmir valleys. A. glauca has been used as traditional medicine for curing flatulence and dyspepsia. Roots of this plant are also used by the local people for giving the flavour of celery to their food[12] . Cup of tea made from 10–20 gm roots is taken before bed for 2–3 days to treat fever[13]. About 3 g powder is taken orally with warm water to cure gastric troubles. Crushed parts are mixed with ghee (clarified butter) in 2:1 ratio, warm them and applied externally on swollen parts of the body especially leg joints to cure swelling and pain [14]. It has been shown that many species of Angelica exhibited a variety of activities due to the presence of coumarins. Coumarins exhibiting cytotoxicity against human cancer cell lines and mouse cells [15], acetylcholinesterase inhibition and that act on hepatic microsomal drug metabolising enzymes have been isolated from various species of Angelica[12].

Angelica is used to reduce muscular spasms in asthma and bronchitis. It is also used to ease rheumatic inflammation, to regulate menstrual flow and as a stimulant to increase appetite. The stems are candied for culinary use. Ethnobotanical use: The roots are used as a flavouring agent in vegetable, meat and pulses. The roots are used in treating dyspepsia and stomachache amongst the natives of Himachal Pradesh.[16]
GC-MS Analysis
The plant material were collected from different locations at different days and were subjected to hydrodistillation yielded about 0.12 % pale coloured oil. Qualitatively and quantitatively GC pattern of all the oil samples was found to be nearly similar, therefore, a representative sample of herb from entire area was collected and chemically investigated. The gas chromatogram of the oil revealed the presence of 40 components, of which 24 were identified, representing 95 % of the oil. The A. glauca root oil has been found to be rich in ligustide and butylidene phathalides 3,6, while these compounds were absent in A. glauca essential oil. The major compounds of A. glauca herb essential oil were characterized as terpene hydrocarbon like α-phellandrene (13 %), trans-carvol (12.0 %) β- pinene (11 %), β-caryophyllene (7.0 %), β-caryophylleneoxide (7.0 %) γ-terpinene (6.7 %), β-bisabolone (5.7 %). Germicene D (4.5 %)[17]

Phytotoxic Activity
The essential oils of A. glauca and V. wallichii shows good phytotoxic activity against Lemana minor (table 5 and 6) while Plectranus rugosus shows no phytotoxic activity.[17]

References


Respected Sir

AoA

Please find the mail of Mr. Ejaz a student of Ph.D. Rawlakot. Your suggestion is requested.

Regards
Iqbal Azhar

On Monday, February 8, 2016 4:15 PM, Ejaz Basheer <ejaz.akson@must.edu.pk> wrote:

Asslam o alikum Sir,

I have thoroughly check literature for the plants suggested by Prof Dr, Usman Ghani sab, but in all cases anti-inflammatory, anti oxidant and enzyme inhibition studies have been carried out by different researchers, even plant i have porposed Aesculus indica have already been explored for anti-inflammatory, and anti oxidant activities under the synonyms Aesculus hippocastanum.

After extensive search i found following 2 plant which seems to be suitable to carried out these activities.

1. Angelica glauca ( Angelica species suggested by Sir)
2. Aconitum violacium

Both above mentioned plants have ethno pharmacological use in gout, rheumatism and pain, and available in Kashmir valley

Plz find attached detail

Looking forward for your much needed and valuable suggestions

Best Regards

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On Fri, Dec 18, 2015 at 8:12 PM, Ejaz Basheer <ejaz.akson@must.edu.pk> wrote:

Dear Sir.

Following Plants are suggested by Prof. Dr Usman Ghani

Terminalia chebula
Viola odorata
Alpinia galanga
Cretegus oxycantha
Cissus quadrangulaires
Saliva officinalis
Miura puma
Damania spp
Angelica spp
Angelica sincnsis
Rehmania glutinosa
Hoodia gordonii
Lycopus lucidus

Sir I did not found World Journal of Pharmaceutical Sciences
in JCR-Impact-Factors-List
sir it would be great help for me if you could mail the exact name and hyper link of journal for article publication.
Unable to repay against your kindness and help

Best Regards

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