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“Evaluation of Efficacy of *Arka Taila* in the Management of Otomycosis – A Phytochemical Analysis”

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Abstract

Otomycosis affect external Ear Canal, is simply known as fungal infection of ear which causes inflammation, tinnitus and mild to severe itching, more seen in dusty warm and humid area. It seems to be a very common clinical condition found in the outpatient department of otorhinolaryngology all over the world. Symptoms of Otomycosis are similar to *karnasrava* (Discharge from external auditory canal) and *Karnakandu* (Itching in external auditory canal) in Ayurveda. Otomycosis affects skin of external auditory canal which causes *Kandu*, which is a type of *kushtha Roga*. Use of *Sneha Kalpana* (Medicated *ghee* and oils) in the management of *Kushtha Roga* has been vogue since *Samhita* period. *ArkaTaila* is an important formulation described by *Acharya Sharangdhara* in the management of skin diseases like *Pama*, *Kachchu* and *Vicharchika*. An attempt has been made in the present analytical study to rule out the antifungal, antibacterial and anti-inflammatory properties of each ingredient of *Arka Taila*. All the parameters were found to be good and effective in the management of Otomycosis.

Keywords: *ArkaTaila*, *Haridra*, *SarshapaTaila*, Otomycosis, Phytochemical.

Introduction

Arka (Calotropis procera) - The part used to prepare *Arka Taila* is *Arka Patra*, specifically *Swarasa* (Leaf juice). Root extract of *Calotropis procera* has been reported to have antioxidant and membrane protective activities, thus it plays an important role to cure the disease Rheumatoid arthritis and other autoimmune disorders, as the antioxidant are the free radical scavengers that minimize the damage caused by reactive oxygen species (ROS). The whole plant when dried exhibits good tonic, antihelminth and expectorant activities. It has properties of *Bhedana*, *Virechanopaga*, *Rechana*, *Vamanopaga*, *Vamaka*, *Dipana-Pachana*, *Pittasaraka*, *Shothahara*, *Raktashodhaka*, *Kandughna*, *Kushthaghna*, *Vranashodhana* and *Vednasthapana*. Traditionally, the powdered root is used to treat bronchitis, asthma, leprosy, eczema, elephantiasis.

2) *Haridra*- Rhizome of *Haridra* is brownish-yellow in color and powder of *Haridra* is used systemically for wound healing. It possesses antibacterial, antifungal and anti-inflammatory activities. According to Ayurveda it has properties of *Varnya*, *Twachya*, *Mukhakantikara*, *Kushthaghna*, *Kandughna*, *Kaphaghna*, *Shothahara*, *Vednasthapana*, *Raktaprasadana*, *Raktavardhaka*, *Raktastambhaka*; *Vranaropana* It is useful in inflammations, ulcer, wounds, leprosy, skin diseases and allergic conditions. Curcumin has potent anti-inflammatory and analgesic activities – The anti-inflammatory property and the presence of vitamin A and proteins in turmeric result in the early synthesis of collagen fibers by mimicking fibroblastic activity.

Curcumin is an important constituent of turmeric powder, has shown faster wound closure of punch wounds by Re-epithelialization of the epidermis and increases migration of various cells including myofibroblasts, fibroblasts and macrophages in the wound bed.

3) *Sarshapa*- Mustard is used as an emetic, diuretic as well as a topical treatment for inflammatory conditions such as arthritis and rheumatism. It possesses antitoxic properties and has phytotoxins which are involved with the plant defence mechanisms such as antibacterial and antifungal activities. Chemical constituent Sinigrin has the potential to cure wounds. In Ayurveda it is used as *Kandughna*, *Varnya*, *Kushthaghna*, *Lekhana*, *Jantughna*, *Vednasthapana*, *Krimighna*, and *Vranaropana*.

Materials and Methods

The whole process is done in following steps: -

1. Collection of plant materials
2. Preparation of plant extracts- a) Hot water extraction, b) Solvent extraction
3. Qualitative Phytochemical analysis.

Table 1: Qualitative Phytochemical analysis.

Sr. No.	Quality	Test
1.	Test for Proteins	1. Millon's test 2. Ninhydrin test
2.	Test for Carbohydrates	1. Fehling's test 2. Benedict's test 3. Molisch's test 4. Iodine test
3.	Test for Glycosides	1. Liebermann's test 2. Slkowsky's test 3. Keller-Kilani test

Other tests are done for phenols, tannins, saponin, steroids, terpenoids and alkaloids.

4. Quantitative Phytochemical analysis: This study includes-

1. Total phenolic content
2. Total flavonoid content

Result

The chemical constituents of each ingredient of *Arka Taila* and their effect on body are summarized in table 2-

Table 2: Phytochemical properties.

Sr. no.	Drugs	Chemical constituents	Specific actions on body
1	Arka	It contains three glycosides viz. Calotropin, uscharin and Calatoxin. Asclepin, bitter resins- akundarin, trypsin, ethyl acetate, labenzyme, calotropangenin.	Antihelmintic Antifungal Antipyretic
2	Haridra	Rhizomes contain Curcumin (Diferulomylmethane), turmeric oil on turmerol and 1, 7-bis, 6-hepta-diene-3, 5-dione, proteins, fat, vitamin A, B and C.	Anti-inflammatory Antibacterial Antioxidant Antiallergic Antifungal
3	Sarshapa	Volatile oil, glycoside like glucocheirolin, glucotropeolin, sinigrin, sinapin, isothiocyanate Sulphocynide, lecithin, myrocinn, protein & minerals, phosphates of potassium, magnesium and calcium.	Antileprosy Antitoxic Antifungal Antimicrobial Anti-oxidant.

Conclusion

It may be concluded that chemical constituents of all three drugs are having properties of antifungal, antibacterial, antitoxic, anti-inflammatory and analgesic activities, hence proved to be effective and safe in the management of Otomycosis.

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