A CRITICAL REVIEW OF THE MEDICINAL PROPERTIES OF SPILANTHES ACMELLA MURR.

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A B S T R A C T

The world has enormous biodiversity including plants which has resources of the mankind. The plants not only help to survive the earth environment but also act as sources of the food, shelter, etc., to the human needs. The medicinal importance of the plants is known from ancient times. Spilanthes acmella also has some medicinal properties for the use as drugs and formulations to cure various diseases. This plant known as Akarkarbha in some Sanskrit texts which are similar to Acmella oleracaea. The plant has Asteraceae family with more than nine species are recorded in India. Popularly this plant is known as anti-toothache plant due to wide importance in oral and dental health problems. All parts are used in medicinal formulations but mostly flower buds and leaves are prominent. This plant also helps to control diseases and pest of the plant. Various pharmaceutical content such as Spilanthol, Alkaylamide, Affinin, Proteins, Butylated hydroxytoluene (BHT), stigmasterol, saponine, β-Sitosterol, α and β-Amyrin, and fatty acids (n-Hexadecanoic acid and tetradecanoic acid) etc., are found. These pharmaceutical drugs are leads to the over exploitation of plants and in future it goes under endangered or threatened category.

Keywords: Spilanthes acmella, Medicinal Drugs, Medicinal Properties, Spilanthol

1. Introduction:

It has a very long ancient history where most of the texts mentioned the uses of plants for the curing various diseases in Ayurvedic texts. Perhaps these texts are available in Sanksrit, Pali and Prakrit languages which are deciphered in other languages through the traditional passage of culture from one generation to the other in Gurukul system. The texts available in Vedic books and Samhitas has another name which is difficult to identify such plants and their uses. Spilanthes acmella (Synonymous to the Acmella oleracea) has Akarkarbha name in Samhita texts which are also confused with the plant Anacyclus pyrethrum [63]. This plant is inserted in Ayurveda by Gadanigraha [53]. In the world, more than 300 species are recorded [7, 22], while in India near about 9 species is found [57, 62]. The plant has compact multisport growth with 1 to 3 feet height. The plant leaves are acute at the margin and narrowed down to base with alternate orientation on both sides of the stem. The leaves are dark to light green in colour with pink or red golden color flower buds at top of the petiole. The inflorescence is terminally capitulated with solitary and compact in nature and pedunculate in shape. Flowering seasons is throughout the year but growth will be bushy in the rainy season. The flower heads have burning taste when chewed under teeth with stammering properties. Soft hairy growth is observed on the stem. This plant is now in the stage of the highly endangered category due to overexploitation[55]. We are focusing the reviews of the ancient texts and recent researches to explore the medicinal importance of this plant.

1.2 Medicinal Importance of Spilanthes acmella:

Spilanthes acmella plant is known as an anti-toothache plant as this plant has used in dental cavities and oral health problems. Various herbal toothpaste and oral mouthwash are using this plant for preparations. The leaves and flower heads have acrid taste when chewed and mixed with saliva which produces burning taste to mouth with numbness fill [6, 15, 64]. In dental problems such as a toothache, gum infections, dental caries and cavities, oversensation of gums, bleeding of gums etc and throat problems such as a cough, allergic infections, stomatitis etc., and this plant is useful [8, 10, 28, 43, 49].

The plant reported as Vajikarna (aphrodisiac) i.e. to gain sex comfort and Verryastambhana (restoring premature ejaculation) in ancient Ayurvedic texts by repairing neurological problems [20, 25, 54]. It improves semen quality avoid impotency [42, 48] and increases Testosterone, FSH, and LH etc [52]. It helps to control leucorrhoea (Estrogen imbalance) in females, asthma, rheumatism [24], fever, cold and flu, poisonous sting and snake bite [6, 13, 10, 11, 14, 27, 49, 62, 64,]. It also has anticancer [18,35,33,37], antidiabetics, antiinflammation, antimicrobials, antifungals, antibacterials, antioxidants, antiallergic, antiulcer, anticonvulsant, analgesics, antiobesity, antiprotozoal and antihypertension [1, 4, 16, 44, 47, 51] properties. It also found local anesthetic and antipyretic activities [1, 10, 17e, 34,]. It has diuretics [16, 31, 66, 44, 46], free radical scavenging properties [65]. The plant extract is used against malaria, filaria and helminthiasis as antiviral agent [3, 5, 26, 29, 38, 40, 41, 50, 58]. It has ovicidal, insecticidal properties to kill mosquito Anopheles, Culex, Aedes aegyptii [50, 56] and pest Tuta absoluta [36] P. Americana [51].

It also used in beauty products and dermatitis which can control skin related problems such as scabies, psoriasis [39, 60, 67], scurvy diseases [12, 59] and act as ant-ageing properties with improved blood circulation in the body. The skin diseases such as ringworm, vaginal yeast, athlete's foot and jock itch etc. cured by using this plant. It also helps to minimize tensions and cold sores and herpes infections (https://thefamilyherbalist.wordpress.com).

Hence some market products such as anti wrinkle firming light cream [32], Gatuline® antiaging skin repairing cream [19], dermiproducts marketed by HerbPharm, USA [23], Sinus support formula "intensify" and "Spilanthes supreme" – an antiviral formula, Dentaforce aftershave cream prepared by Vogel Australia Pty. Ltd. Declatone neck antiwrinkle cream, etc., are commercially available in the market.

1.3 Pharmaceutical Content Found in Spilanthes acmella:

In the pharmaceutical industry, this plant is used to prepare various drugs and formulations which having specific chemical content. The plant has reported Spilanthol [21], N, isobutylamide, stigmasterol, alkylamides, saponine, β-Sitosterol, α, and β- Amyrin [16], Myricyl alcohol and pentacyclic triterpene [30, 61]. Some other constituent like undeca-2E-E-N-8,10-diynoic acid isobutylamide (UDA) [9], 2E,4E, 8Z,10Z-N-isobutyl-dodeca-2,4, 8,10-tetraenamide, at 0.71% [26, 52]. The amino acids, phenolics, vanillic acid, trans-ferulic acid, transisoferulic acid, coumarin, scopoletin, triterpenoid 3-acetylaleuritolic acid-sitostenone, stigmasteryl-3-O-β-D-glucopyranoside and β-sitosteryl-3-O-β-D-glucopyranosidesa reported [45]. So many other constituents also discovered by other researchers in there scientific research.

1.4 Conclusion:

This medicinal importance and chemical constituents reviewed by various researchers to claim the importance of this plant. This plant should be conserved properly for the upcoming needs in a pharmaceutical industry otherwise in future it goes under the critically endangered category. The in-vitro conservation and

propagation technology will help not only to conserve this species but also to produce pharmaceutical compounds in-vitro condition.

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