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### A REVIEW ON EFFECT OF CENTELLA ASIATICA (THANKUNI) IN HUMAN AS A MEDICINAL PLANT

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#### ABSTRACT

The FAO (2002) determined over 50,000 medicinal plants or medicinal herbs contain biochemical e.g. alkaloids, glycosides, polyphenols, terpenes etc used for maintain health, has defense role against insects, fungi, diseases and herbivorous mammals. Thankuni or Asiatic pennywort or *Centella asiatica*, a herbaceous, perennial plant in Asia used as both vegetable and medicinal herb. The plant is aquatic, the different harmful chemicals or pollutants may absorbed into the plant so cultivated plant in dried soil is important for us. The various biochemicals are present in the plant e.g. asiaticoside, brahmoside, asiuyatic acid, brahmic acid, centellose, centelloiside, madecassoside etc used in human as treatment of different types of disorders, drowsiness, disease of liver, pharmaceutically used as for enhancing memory, clinically used for treatment of different types of skin problems, leprosy, lupus, varicose ulcer, eczema, diarrhea, fever, amenorrhea, anxiety etc. This study for find out the effects and actions of the *Centella asiatica* in different systems of human.

#### Keywords:

*Centella asiatica*, chemical composition, clinical effects.

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#### INTRODUCTION

The medicinal plant that are used in specific way for maintain life, the plants contain different phytochemicals that has more pharmacological actions. The chemicals are alkaloids, glycosides, polyphenols, terpenes etc, the alkaloids are bitter tasting which used in different medicines e.g. atropine, scopolamine, berberine, caffeine, cocaine, morphine, nicotine, reserpine, quinidine, quinine etc. The sources of the alkaloids are *Papaver somniferum*, *Atropa belladonna* etc. The alkaloid nicotine can bind to the nicotinic acetylcholine receptor or nAChRs for its action e.g. cell maturation and has an important functions in the cells glia spermatozoa, placental and in several sensory organs (Gotti C et al, 2019). The glycoside is important molecule most important in an organism, in the chemical sugar attached with other molecule by glycosidic bonds, the inactive form of glycoside present in the plants, is activated by hydrolyses enzyme become the chemical is activate (Brito-Arias, 2007). *Senna alexandrina*, foxglove are the important medicinal plant contain anthraquinone glycosides, digoxine respectively which are utilized as in the treatment of cardiac disease (A. Elumalai at al, 2012). The another important chemical polyphenols e.g. phytoestrogens, astringent tannis present in the medicinal plants are *Pueraria mirifica*, kudzu, angelica, fennel, anise etc utilized as in treatment of fertility, menstrual problems and menopausal problems (Muller-Schwarze, Dietland, 2006). Terpenes terpenoids are the chemicals present in the plant *Thymus vulgaris*, used as antiseptic and anti-worm medicine (Rockville Pike, Bethesda, 2017). The *centella asiatica* or gotukola or thankuni or India pennywort or brahmi, hydrocotyle, jalbrahmi, manduukaparani or tsubokusa distributed in many areas of world include India and growth abundantly in moisture place, is herbaceous contain pentacyclic triterpenoids which has cardiovascular and dermatological used (Drugs. Com, 2020). The overall parts of the plant are applicable for medical purpose (Pratibha Singha and J. S. Singha, 2002). The *centella asiatica* can casue of harmful while taken for long periods e.g. hepatotoxicity, emmenagogue in pregnancy and lactation phase (Web MD, 2020).

#### CHEMICAL COMPOSITION

The *centella asiatica* is an important medicinal plant which contains triterpenoids which composed of three terpene units with chemical formula  $C_{30}H_{48}$  which is the precursors of all steroids, the triterpenoids has more medical applications. The *centella asiatica* also contains above 70 chemicals e.g. polyacetylenes, flavonoids,

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sterols, lipids and flavones and phytochemically its contain amino acids, fatty acids, alkaloids, sterols inorganic salts (Drugs. Com, 2020). The *centella asiatica* also contain centellin or 6-acetoxy-trideca-1,7-dien-4-yn-3-ol, asiaticin or p-benzoyloxy methyl-butyl benzoate and centellicin or 1-(20, 30-dihydroxypropyl)-2-en-3-methyl-6-hydroxy-9-yn-undecanoate which are more effective in clinical treatment (B. S. Siddiqui et al, 2007).

### EFFECTIVENESS IN HUMAN

The *centella asiatica* is used or more effective in medical purpose such as helps in the treatments of wounds, burns, hypertrophic scars by increasing type – 1 collagen formation and cell layer fibronectin due to presence of terpenoids (Wieslawa Bylka et al, 2013). It has important role in prevention of different diseases of central nervous system (CNS), by the chemical triterpene or its derivatives e.g. Asiatic acid, brahmie acid, madecassic acid etc (Ilkay Erdogan orham, 2012). An experimental report shows that the *centella asiatica* can prevent the gastric ulcer by reducing the activity of free radicals in gastric mucosa (Cheng CL and Koo MW, 2000). The *centella asiatica* has hepatoprotective activity is proved by application of the extract in carbon tetra chloride induced damaged liver of rats (Shirish S.Pingale and Gramonnati Mandal, 2008). The *centella asiatica* can prevent the liver damage as well as hepatoprotective by decreasing the activity of different chemicals e.g. IL-2, IL-6, IL-12, TNF, IFN etc that has potent damaging activity in liver cells (Myung-Joo Choi et al, 2016). The immunity is the protective power against antigen, the *centella asiatica* contain S3A pectin has stimulatory role in immunity (Wang XS, 2003). The *centella asiatica* is a reputed herbs, has more powerful application in different clinical purpose, utilized as a antitumor, antiviral, antidiabetic, antibacterial, antioxidant, anti-inflammatory etc (Ilkay Erdogan orham, 2012). The *centella asiatica* also used as following treatments atherosclerosis, thrombosis in veins, enhancing memory, anxiety, fatigue, jaundice, indigestion, sunstroke, urinary tract infection, burns etc (Web MD, 2020). It can cause of release of nerve growth factor which increase neural growth is Brain-derived Neurotrophin Factor (BDNF) There is no more study on the dosages of *centella asiatica* in human, but from the different studies it has been revealed that the 32 – 48mg/kg body weight dosage of the plants supplementary is helpful in human (Kamal Patel, 2019).

### CONCLUSION

The *centella asiatica* is an important medicinal plant, most of the parts of the plant is used in different clinical purposes yet it has some completed effects or harmful effects when it was used orally for long times in human. It contain different chemicals, out of them triterpenoids is most potent and acting in different clinical treatments through formation of collagen, S3A pectin provide repairing wound and inflammation, enhancing immunity and inhibiting the free radicals formation that prevent the cells from damaging.

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