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ASHWAGANDA: PREVENTIVE AND THERAPEUTIC POTENTIALS IN COVID-19

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ABSTRACT

Ayurveda is a 5000-year-old Science of health care and herbal treatment. Ayurveda is highly effective in common and complicated ailments, assures long term relief and has no side effects. Ayurveda is now backed by modern scientific research and technologies and provides its gentle healing touch to millions around the world. Ashwagandha [Withania somnifera] has demonstrated its potency as an antibacterial, antiviral, anti-inflammatory, antioxidant and immunomodulatory compound, it promises to be an efficient, natural, affordable therapeutic agent. More research and clinical trials are required to use this compound successfully in Covid-19.

KEYWORDS: Ayurveda, antibacterial, antiviral, immunomodulatory, anti-inflammatory,

INTRODUCTION

Ayurveda – the traditional medicine of India -when the great texts of Caraka and Suśruta were redacted in the presently available format and the two texts of Vāgbhaṭa – Saṅgraha and Hṛdaya – were composed. Systematization involved the division of Ayurveda into eight branches, refinement of basic concepts such as tridoṣa, standardization of medical procedures such as panchakarma, the establishment of an elaborate training protocol for Ayurvedic physicians and the development of medical therapy based on a massive formulary, much of which was composed of medicinal plants.

Medicinal plants constitute the principal weapons in the therapeutic arsenal of Ayurveda. They greatly outnumber animal and mineral products. While *Caraka Samhita* mentions

nearly 2000 plants for the making of drugs, the earlier Buddhist literature refers to less than 500, indicating the growth of a herbal formulary in Ayurveda over the centuries.[1]

Ashwagandha (*Withania somnifera*), highly valued among Indian medicinal plants, occurs throughout the drier and subtropical parts of India and is cultivated widely in Madhya Pradesh. It has been documented to enhance the functions of, which is reported to elevate defence system against diseases, arrest ageing, revitalize the body, increase resistance against adverse environmental conditions to create a sense of mental well-being.[2]

Chemical composition

Withaferin A; withanone, withanolide ws-1, withanolide A to Y; somnirol, somnitol; withasomniferin A, nicotine, preudotropine, tropine, solasodine, withasomnine, sitoindosides vii-x, sominone, sominolide etc.

The therapeutic effect of ashwagandha [w.somnifera]

Antimicrobial- In Vitro Antibacterial Effect of Withania Somnifera Root Extract on Escherichia Coli.[3]

Antiviral- Antiviral activity of Withania somnifera extract has been reported earlier on Herpes Simplex Virus Type-1 (Kambizi et al., 2007). The inhibitory action of Withaferin A, a steroidal compound present in Withania somnifera against Herpes Simplex Virus has also been reported (Grover et al., 2011). In an in-vivo experiment polyherbal drug (Immu-25), containing Withania somnifera has shown antiretroviral activity against HIV infection (Usha et al., 2003). Antiviral activity of WS root extract was determined by the reduction of virus titer using TCID50 determinations (Kibenge et al., 1988).

The natural compounds from Ashwagandha and Propolis have the potential to be an effective novel coronavirus preventive drug, according to the research team.

"The researchers targeted the main SARS-CoV-2's enzyme for splitting proteins, known as the main protease (Mpro), that plays a key role in mediating viral replication. This is an attractive drug target for this virus, and as humans don't naturally have this enzyme, compounds that target Mpro are likely to have low toxicity,"[4]

Anti-inflammatory –The leaves found to possess marked effects in sub- acute inflammation and hepatotoxicity. The extract at 1gm/kg dose was found to be as active as 50 mg/kg of phenylbutazone and 10 mg/kg of hydrocortisone. The protective effect of the extract of

1gm/kg dose against CCL_4 induced hepatotoxicitywas comparable to 10 mg/kg of hydrocortisone [Sudhir et al., 1986]

Unlike non-sterodial anti-inflammatory drugs, it resulted in a specific reduction in the synthesis of alpha -2-macroglobulin and increase in the synthesis of total serum protein suggesting the basis for its wide spectrum of pharmacological activities [Anabalgam & Sidique, 1985]

W. somnifera and V. negundo are found to reduce acute inflammatory reaction [Srivastava et al., 2000-2001][5]

Antioxidant- Kaur et al., (2004) reported antiproliferative and antioxidative activities of leaf extract of Withania somnifera. The mechanism of the chemopreventive activity of W. somnifera extract has been attributed to its anti-oxidant and detoxifying properties [Jai Prakash et al., 2001]. Immunomodulatory and immunosuppressive activity is established [Furmanowa et al., 2001].

CONCLUSION

Ashwagandha [Withania somnifera] has demonstrated its potency as an antibacterial, antiviral, anti-inflammatory, antioxidant and immunomodulatory compound, it promises to be an efficient, natural, affordable therapeutic agent. More research and clinical trials are required to use this compound successfully in Covid-19. The findings may not only connect to save time and cost required for screening for anti-Covid-19 drugs, but may also offer some preventive and therapeutic value for the management of fatal Covid-19 pandemic, and hence, warrant prioritized validation in the laboratory and clinical tests," he said. The drug's development may take some time, and in the current scenario, these natural resources -- Ashwagandha and Propolis -- can offer some preventive or even therapeutic value.[6]

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