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## A Review of Saponine rich herbal drugs on COVID – 19 w.s.r to their Muco-adhesive action

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### ABSTRACT

Commencing ancient period there are abundant medicinal herbs which have been used in many kind of disease even which are dreadful in conditions. Also for treatment and preventative strategy for several diseases, such as respiratory viral infection, Meningitis, Rhinitis etc. So the benefit of these medicinal herbal drugs which are used in viral respiratory infections diseases is require to build immune stimulating boosting power and also inflammation modulate special effects of manage the immune system. Indian preventative and prophylactic medicinal plants recommended by AYUSH ministry for noval virus COVID 19. So in the present study virtue of some herbal drugs are taken which containing various saponine present in it. It has Virucidal properties of Some saponins and sapogenins are competent to deactivating viruses and might be act as Mucoadhesive agent because Mucoadhesive drug delivery (MDD) system is one of the very important restrictive steps for nasal drug delivery, because it decreases the time allowed for drug absorption. So these MDD improving the nasal drug absorption in time period and also prolonging the contact time between nasal mucosa and drug. Mucoadhesion represents the attachment of the drug delivery to the mucus, involving an interaction between mucin and a synthetic or natural polymer known as mucoadhesive.



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### INTRODUCTION

Generally, human coronavirus infection present throughout the world. Coronavirus infections appear to be particularly prevalent in late fall, winter and early spring. The natural reservoir of SARS-

CoV appeared to be the horseshoe bat. The outbreak may have originated from human contact with infected semi domesticated animals such as the palm civet. SARS –CoV was at first believed to represent a novel group. In general, humans coronavirus have been difficult to cultivate in vitro, and some strains grow only in human tracheal organ culture rather than in tissue culture. In most cases infection was transmitted from human to human. The mechanism of transmission of SARS are incompletely understood. Due to which spread may occur by both large and small aerosols ( coughing, sneezing, touching ) fecal – oral route ( improper hand washing after toilet and before food ). The outbreak of illness in hong kong suggested that sewage or water may also play a role in transmission. Case fatality rate 9.5% (Fauci *et al.*, 2012). Currently, no antiviral medication is recommended to treat COVID-19. Treatment is directed at relieving symp-

toms and may include Pain relievers (ibuprofen acetaminophen) Cough syrup or medication, Rest, Fluid intake (COVID-19), 2020).

So due to unknown aetiology of corona virus there are some prevention to take such as wash your hand frequently, maintain social distancing, Avoid touching eyes, nose and mouth, Make sure you and the people around you, follow good respiratory hygiene. This means covering your mouth and nose with your bent elbow or tissue when you cough or sneeze. Then dispose of the used tissue immediately. If you have fever, cough and difficulty breathing, seek medical care early. Prevent air borne, droplets infection, contact transmission from suspected cases, wear Protective mask e.g N 95. These are the some preventative measures suggested by WHO government of India. (WHO, 2020)

In ayurveda it is stated that the vyadhi which having no any exact hetu (Causative factor) and no any chikitsa (Treatment) can be known as sansargjanya vyadhi (Communicable) diseases (Kaviraj, 2014). There are some drugs which contain high rich saponine. That high rich saponine drugs having capability to act in respiratory system through mucoadhesive action like Bramhi, Kantakri, Methika, Gokshura, Rishtaka, Gokshura mentioned in Table ?? . Hence the effectiveness of herbal drugs over the respiratory system in COVID – 19 might be preventable one.

## MATERIALS AND METHODS

Ayurvedic literature was collected from (Barooah, 2017; Prakash, 2016), Modern literature collected from Morden books, journals, and internet. All information was collected, analyzed and interpreted.

## OBSERVATION AND DISCUSSION

Mucoadhesive drug delivery system is one of the very important limiting steps for nasal drug delivery, because it decreases the time allowed for drug absorption. So these systems improving the nasal drug absorption, and also prolonging the contact time between nasal mucosa and drug. Mucoadhesion represents the attachment of the drug delivery to the mucus, involving an interaction between mucin and a synthetic or natural polymer known as mucoadhesive. The sequential events that occur during this mucoadhesion include different steps. First mucoadhesive systems absorb water from mucus layer and get wet and swell. Following this, the polymer intimately penetrates into the mucus and, hence, localizes the formulation in nasal cavity, increase the drug concentration gradient across

the epithelium. This system is useful in intranasal drug delivery are alginate, cellulose and alginate or its derivatives (Bansal et al., 2017). Virucidal activity of Some saponins containing and sapogenins drugs are competent to deactivating many viruses, there are example, purified saponin fusion from *Maesa lanceolata* drug. The content triterpenoid sapogenin oleanolic acid they are inhibits HIV-1 virus duplication probably act as inhibiting HIV-1 protease activity in cell (Desai et al., 2009). Many chemicals are encountered by human either accidentally because they are in the atmosphere or by contact during occupational and recreational activities or by ingestion of food additives. It is conceivable that some chemicals may be inadvertently released into the environment and therefore be injurious to human health (Goyal et al., 2016). One of the traditionally known plants is *Trigonella foenum-graecum* (L.) (fenugreek). It grows once a year and is a self-pollinating plant. Species of *Trigonella* are widely distributed throughout the world. The plant has been mainly found on the continents of Asia (India and China), parts of Europe, Africa, Australia, and North and South America. (Yadav and Baquer, 2014). Gokshura (*Tribulus terrestris*) Fruit contain an alkaloids in traces. Hermine is seen in the herbs and seeds. The plant contains saponine, which on hydrolysis yield steroidal sapogenins. kaempferol, Kaempferol 3 – glucosides. Flavonoid tribulose (Misra and Tandon, 2003). The saponin rich fraction prepared from fruits of *Solanum xanthocarpum* was evaluated for antiurolithiatic activity by *in vitro* and *in vivo* studies (Patel et al., 2012) and *Solanum Xanthocarpum* is used for clearing catarrh as well as phlegm in the bronchial tubes. This makes it a management for respiratory problems like bronchitis, cough and asthma. (COVID-19), 2020)

## RESULTS

Result are drawn on the basis of properties and actions of these drugs which having several chemical constituents which are containing saponine. In present study it was interpreted that these drugs are having a saponine content which are act as Mucoadhesive Showing in following table.

## CONCLUSIONS

In present study it is found that Saponins are a diverse family included in secondary metabolites. Many plants used in traditional medicines worldwide contain saponins, which can often account for their therapeutic action. It is believed that the natural role of these compounds in plants is to protect against attack by potential pathogens, which would

**Table 1: Showing saponine constituent in herbal drugs**

Sr. no	Name of herbs	Botanical name (Misra and Tandon, 2003)	P/u (Shas-tri and Vigyan, 2015)	Saponine	Action
1.	Gokshura	Tribulus terrestris	Fruit	Steroidalsapogrnins, diosgenin, gitogenin, chlorogenin (Misra and Tandon, 2003)	Anti urolithiatic Monoamine oxidase inhibitor (MAOI), antimicrobial (Misra and Tandon, 2003)
2.	Bramhi	Bacopa mon-neiri	Whole	Bacosides A& B (Misra and Tandon, 2003)	Antioxidant, Antiviral, anticarcinogenic (Sabnis, 2006)
3.	Kantakari	Solanum xanthocarpum	Fruit	Saponine	antioxidant, Antioxidant, Bronchodilator (Sabnis, 2006)
4.	Methika	Trigonella foenum-graecum (L.)	Seeds	diosgenin, neogitogenin, homorientin, trigogenine (Yadav and Baquer, 2014)	Antidiabetic, Antioxidant, Antitumor, Antigenotoxic, . (Nayak and Pal, 2014)
5.	Arishtaka	Sapindus mucorossi	Fruit	Triterpenoid Saponine, Sapindoside A & B, acetylated triterpene bisdesmoside saponin is elucidated as named Hederagenin 3-O- $\alpha$ -L-rhamnopyranosyl (Sharma et al., 2013)	Insecticidal activity, Anti-protozoal activity (Sharma et al., 2013)

account for their antimicrobial activity. Although saponins are extremely toxic due to cold-blooded animals, their oral toxicity to mammals is low. Due to their toxicity to various organisms, saponins can be utilized for their antiviral, insecticidal, antibiotic, fungicidal, and other pharmacological properties. The wide chemical diversity of saponins has resulted in renewed interest. This review provides a summary of saponin research.

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