Neem – A Tree Can Solve Current Global Problem of Coronavirus Outbreak

Abstract: Neem is a traditional and therapeutic tree which commonly found in most places of Southeast Asia. Its extract possesses antibacterial, antifungal, antimalarial, and antiviral properties. Plants, vegetables and herbs are used as food and traditional medicine have been accepted currently as one of the chief sources of cancer chemoprevention drug discovery and development. Regardless, a number of plant extracts used beside diseases in traditional medicines, however only a few of them have been scientifically explored. Several reports have also emphasized the obvious antiviral value of aqueous extract of Neem leaves against various diseases assessed by virus inhibition assay. Thus in present study, it is therefore suggested that Neem and its extracts can be may be used as an intervention to reduce the risk of COVID-19 among more susceptible populations.

Keywords: Neem, Antibacterial, Antifungal, Antimarial, Antiviral.

INTRODUCTION

Neem (Azadirachta indica) is a fast-rising perennial common traditional and therapeutic tree (Pingale, 2010), which commonly found in India, South Africa, and Southeast Asia. It also grown abundantly in West Africa, though very limited tree planted in the American countries (Pingale, 2010; Vimala, 2014). It is also called “arista” in Sanskrit a word that means ‘perfect’ complete and imperishable (Girish, 2008) Arishtha is the Sanskrit name of the neem tree meaning ‘reliever of sicknesses’ therefore it is called as ‘Village dispensary’ in India. A report published by US National Academy of Sciences in 1992 with title ‘Neem – a tree for solving global problems (Kausik, 2002).

Medicinal Properties of Neem

Neem has been used in ayurvedic medicine for more than 4000 years due to its medicinal properties. For centuries, Indian has cleaned their teeth with neem twigs, prevent skin disorders with neem-leaf juice, taken neem tea as a tonic (Surgio, 2007). Twigs, a teeth cleaning device for centuries, Indian has cleaned their teeth with neem twigs, prevent skin disorders with neem-leaf juice, taken neem tea as a tonic (Surgio, 2007). Twigs, a teeth cleaning device (NRC, 1992) effective as antiplaque and anti-gingivitis agents (Rao, 2014) so that commercial herbal toothpastes contain neem as an active ingredient (Jenner, 2013). Water extracts of neem twigs inhibited growth of dental caries organisms Streptococcus mutans, S. salivarius, S. mitis, and S. sanguis (Chava, 2012).

Neem extracts possess antibacterial, antifungal, antimalarial, and antiviral properties (Rao, 2014; Bharitkar, 2014) whereas leaves cure diarrhea and cholera in India (Thakurta, 2007). In addition, oil and leaves are used in popular medicine as antiparasitic, anti-inflammatory, antiulcer, antihyperglycemic, anticarcinogenic, and immunomodulatory agents (Deng, 2013; Subapriya, 2005) also affect more than 200 insect species as well as some mites and nematodes (NRC, 1992). Chloroform extracts of neem inhibited the growth of Listeria monocytogenes while Ethanolic extracts showed higher inhibition for Staphylococcus aureus (Mahfuzul, 2007). Further, oil is found to be bactericidal to E. coli (Jain, 2013).

Medicinal Uses of Neem and Its Parts

Neem tree and its parts known to have antiallergenic, anti-dermatic, antifeedant, antifungal, anti-inflammatory, anti-pyorrheic, anti-scabies, cardiac, diuretic, insecticidal, larvicidal, nematocidal, spermicidal, and other biological activities as shown in (Table 1) (Biswa, 2002). It has become important in the global situation today because it offers solutions to the major concerns facing mankind and considered harmless to humans, animals, birds, beneficial insects and...
earthworms. Further, it has been approved by the US Environmental Protection Agency for use on food crops (Debjit, 2010). Bark has medicinal uses such as analgesic, alternative and curative of fever. Twig has medicinal properties i.e. relieves cough, asthma, piles, phantom tumor, intestinal worms, spermatorrhoea, obstinate urinary disorder, diabetes (Biswas, 2002).

Table 1. Medicinal uses of different parts of Neem tree (Biswas, et. al.2002)

<table>
<thead>
<tr>
<th>Part</th>
<th>Medicinal uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaf</td>
<td>Leprosy, eye problem, epistaxis, intestinal worms, anaesthesia, biliousness, skin ulcers.</td>
</tr>
<tr>
<td>Bark</td>
<td>Analgesic, alternative and curative of fever.</td>
</tr>
<tr>
<td>Flower</td>
<td>Bile suppression, elimination of intestinal worms and phlegm.</td>
</tr>
<tr>
<td>Fruit</td>
<td>Relieves piles, intestinal worms, urinary disorder, epistaxis, phlegm, eye problem, diabetes, wounds and leprosy.</td>
</tr>
<tr>
<td>Twig</td>
<td>Relieves cough, asthma, piles, phantom tumour, intestinal worms, spermatorrhoea, obstinate urinary disorder, diabetes.</td>
</tr>
<tr>
<td>Gum</td>
<td>Effective against skin diseases like ringworms, scabies, wounds and ulcers</td>
</tr>
<tr>
<td>Seed pulp</td>
<td>Leprosy and intestinal worms.</td>
</tr>
<tr>
<td>Oil</td>
<td>Leprosy and intestinal worms.</td>
</tr>
<tr>
<td>Root, bark, leaf, flower and fruit together</td>
<td>Blood morbidity, biliary afflictions, itching, skin ulcer, burning sensation and leprosy.</td>
</tr>
</tbody>
</table>

Plants, vegetables and herbs are used as food and traditional medicine have been accepted currently as one of the chief sources of cancer chemoprevention drug discovery and development. Regardless, a number of plant extracts used beside diseases in traditional medicines, however only a few of them have been scientifically explored.

**Anti-Tumor and Cancer Activity**

Neem has been used successfully for centuries to reduce tumors by herbalists throughout Southeast Asia. Researchers in India, Europe and Japan have now found that polysaccharides and limonoids found in neem bark, leaves and seed oil reduced tumors and cancers and showed effectiveness against lymphocytic leukemia.

**Anti-Viral Properties**

Several reports have also emphasized the obvious antiviral value of aqueous extract of neem leaves against Small pox, Fowl pox, Polio and HSV as assessed by virus inhibition assay. Aqueous extract of Neem leaf and a fraction from neem oil have also been reported to suppress HIV and Polio viruses (Hassan, 2010). In India, Neem is also used to treat viral diseases such as Smallpox, chickenpox. It may cure AIDS by ingesting Neem leaf extracts or the whole leaf or by drinking a Neem tea (Debjit, 2010).

**CONCLUSION AND SUGGESTIONS**

It is concluded that Neem tree has enormous health benefits due to medicinal properties as approved by the US Health Agencies. It is grown everywhere as it is wealth of man in nature. The beautiful and wonderful nature has cure for every problem of man and diseases. World Health Organization (WHO) reported that globally, around 20,000 medicinal plants are being used abundantly either in pharmaceutical industry or in traditional medicine. Neem and its parts can be used as antibacterial, Antifungal, antiviral, anti-inflammatory, cure many other diseases. It is therefore suggested that Neem and its extracts can be used as an intervention to reduce the risk of COVID-19 among more susceptible populations. It is recommended that, further research studies should be taken in this measure to protect weak immunity people from the effect of lethal virus that about 200 countries are facing the outbreak and death of affected patients.

**REFERENCES**


