# **Short Communication**

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# Senna Makki and the COVID-19 pandemic: a reflection from Pakistan

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# **ABSTRACT**

The outbreak of the novel coronavirus (SARS-CoV-2) since December 2019 has created an unprecedented state. As it is a new variant of a virus treatment options are not only limited but require painstaking trials to confirm their effectiveness. Due to the lack of awareness in many developing countries people have started using herbal medications, used for various other diseases, to combat COVID-19. Misleading information on social media regarding "Senna Makki" has gone viral in Pakistan. However, consumption of Senna Makki is not advised as a treatment option for COVID-19 due to its many harmful associated side-effects. Although its use in other diseases is evident, trials to confirm its effectiveness against COVID-19 need to be prioritized as the public has started consuming Senna Makki in high doses and without monitored prescription.

Keywords: COVID-19, Pandemic, Senna Makki, Herbal Treatment

#### INTRODUCTION

The Coronavirus disease 2019 (COVID-19) is a severe acute respiratory syndrome caused by coronavirus 2 (SARS-CoV-2). COVID-19 was declared a global pandemic all around the world on the 11th of March 2020 by the world health organization (WHO). The severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2) originated in the city of Wuhan in China, where the first case of COVID-19 was reported in December 2019. However, due to its rapid transmission, SARS-CoV-2 was able to spread its roots to other neighboring countries as

According to John hopkins corona virus resource center, massive outbreaks have occurred in countries such as the USA, Brazil, India, Russia, South Africa, Peru, and Mexico.<sup>3</sup> One of the possible causes for such rapid transmission to other countries was frequent domestic and

international travel. It has been well established that COVID-19 spreads through respiratory droplets from an infected person, when the person coughs, sneezes or speaks, or by touching a contaminated surface and then touching the eyes, mouth, or nose, before washing hands. The most common symptoms of COVID-19 include, but are not limited to, shortness of breath, dry cough, fever, and/or tiredness which may lead to COVID-19 pneumonia.

## **COVID-19 TREATMENT OPTIONS AND MYTHS**

As the COVID-19 virus is novel (i.e. new), there have been countless ambiguities regarding possible cure and treatment, and many researchers worldwide are in constant struggle to determine a treatment for this virus. To date, there is no vaccine available for COVID-19, and several treatment options are being looked at by the researchers and healthcare workers. Due to massive panic, shock, and fear created among the public, people

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have started using herbal medicines and other medical treatments on their own, although not enough scientific evidence at the time is present to prove the effectiveness of these herbs and medicines in treating COVID-19. Nevertheless, several studies emerged later that debunked the myths attached to herbal and pharmaceutical medicines used for COVID-19. This includes some antiviral drugs as well, which were proposed as a possible treatment and were tested in many clinical trials globally. The results have been promising on many occasions, but a definite conclusion cannot be made as yet.<sup>4</sup>

The severity of the disease and mortality due to the COVID-19 varies greatly between different countries. This can be explained by many diverse social and economic factors specific to a country, such as ethnicity, dietary habits of the people, social activities, genetic differences, and climate differences. Moreover, the measures and standard procedures taken by many governments to control the outbreak is crucial in understanding the dynamics of the spread of COVID-19 in an affected population and its incidence and the death rates in a country.4 Claims were made that countries with low mortality rates have the BCG vaccine policy which led to the belief of the possibility of this vaccine to have a protective effect against COVID-19.4 Although few studies have reported that these countries which have the childhood BCG vaccination policy were at an advantage and had low morbidity and mortality rates due to the COVID-19, they are prone to biases due to many confounders.<sup>5,7</sup> The clinical trials are still underway and there is no concrete evidence thus far. This is the reason why WHO does not recommend the use of BCG vaccine to prevent COVID-19, as in the absence of evidence. Besides, the mass unnecessary usage of BCG vaccine may result in its shortage and may leave the most vulnerable population, which are the neonates, at risk, as BCG is a vaccine used to prevent severe forms of tuberculosis in children.<sup>6</sup>

In particular to the general public of Pakistan, there has been a popular misled myth circulating between people that an herb called *Senna Makki* could potentially treat COVID-19, which was later also backed by the governor of Sindh, Pakistan. Some media reports shared his experience of using *Senna Makki* leaves along with ginger during his quarantine which helped him recover from COVID-19.8

#### SENNA MAKKI

# Chemical composition of Senna Makki

The dried leaves and fruits of Senna are used for medicinal purposes. There are varieties of Senna, the most common one being the *Cassia acutifolia* which originates from Egypt and is also known as "*Alexandrian Senna*". 9,10 *Cassia angustifolia* is the second most common type of Senna which originates from India and is known as "*Tinnevelly Senna*". 9,10 *Cassia acutifolia* is

native to central and northern parts of Sudan and Sinai, and is cultivated besides the river Nile, whereas Cassia angustifolia is native to Somalia and Southern Arabia, and is cultivated in the North-West of Pakistan and Southern India.<sup>10</sup>

The type of Senna which herbalists use in Indo-Pak and Arabian countries is *Cassia angustifolia*, which is traded under the name of "Senna Makki."

# Use and mode of action of Senna Makki

The United States food and drug administration (FDA) has allowed Senna Makki to be used as an over-thecounter drug.<sup>11</sup> It is used for digestive disorders, such as chronic constipation, hemorrhoids, irritable bowel syndrome, for weight loss, and for other illnesses, such as depression, asthma, eczema, and other dermatological conditions. 10,12 Senna Makki is known for its strong laxative effect and is most commonly used in the treatment of chronic constipation. It contains anthracene derivatives, such as sennosides, which on hydrolysis by bacterial enzymes in the gut, release aglycones of three anthraquinones, anthranols types; namely oxanthrones.<sup>13</sup> These aglycones are the active part of sennosides, and cause the laxative action by influencing the transport of water and electrolytes.<sup>14</sup>

# dosage, side effects, contraindication and drug-drug interaction of Senna Makki

The recommended dose of *Senna Makki* is 8.5 mg per day for children, 17.2 mg per day with no more than 34.4 mg for children over 12 and adults and 28 mg per day (divided into two doses) for postpartum pregnancy.<sup>11</sup>

Its consumption is contraindicated in children less than 2 years of age and patients with intestinal obstruction, ulcerative colitis, crohn's disease, appendicitis, dehydration, diarrhea and heart diseases. <sup>11</sup> Also, there has been noticeable drug interactions of *Senna Makki* in people that use contraceptives (vaginal ring, patch and pills), digoxin, warfarin, diuretics, estrogens, horsetail herb and licorice. <sup>11</sup>

The components of *Senna Makki* work as a strong laxative and may irritate the bowl linings, which means it can aggravate the symptoms of those patients affected by COVID-19, who may also suffer from diarrhea and nausea, that are COVID-19 symptoms. However, due to its increased publicity for effectiveness against COVID-19, it soon became the holy grail in Pakistan for COVID-19 treatment and people started using excess amount of the drug without weighing its risks and side effects over its benefits. The fact that it can cause severe dehydration and an electrolyte imbalance which can be fatal, along with abdominal pain, cramping, fainting and discomfort was ignored. Consumption of *Senna Makki* for more than two weeks can lead to liver damage, coma or nerve damage. Nursing mothers should consult a healthcare

professional as constituents of *Senna Makki* can pass into breast milk in smaller amounts, however if taken in recommended amounts it's relatively safe and does not affect nursing baby's faeces but it's safety in pregnant women is yet to be confirmed.<sup>11</sup>

# SENNA MAKKI AND COVID-19 IN PAKISTAN

People in Pakistan were greatly influenced by the claim of a UK based-herbalist who reported saying that he treated about 150 COVID-19 affected patients by prescribing them *Senna Makki*, and this was also supported by the governor of Sindh, Pakistan. Soon, the general public of Pakistan immediately began using *Senna Makki* due to which, a huge spike in its prices was observed in the markets. It was reported by the media that *Senna Makki*, which used to be sold at PKR 300 /kg, was now selling for PKR 1,500-2,000/kg.<sup>15</sup>

There is still heavy controversy over the usage of Senna Makki as a cure for COVID-19. Pakistani health experts strongly urged the public to avoid Senna Makki, stating that there are no clinical trials or studies which confirm the effectiveness of Senna Makki in treating COVID-19.<sup>16</sup> However, the health experts did agree that Senna Makki can potentially boost immunity. There are several studies as well which support this claim, as one of the components of Senna Makki, anthraguinone, is reported to have an anti-inflammatory, antiviral and immune boosting role. 16-18 Furthermore, a study was conducted which assessed the possible role of anthraquinone derivatives in treating COVID-19. The results of this study were positive; however, the findings were based on computer simulations.<sup>20</sup> Hence, there is an urgent need for the clinical trials to confirm these findings.

Due to so many associated complications of *Senna Makki* and lack of clinical data, health care professionals have strongly discouraged it's use in COVID-19.<sup>16</sup>

## **CONCLUSION**

It is crucial that the public strongly follow their healthcare provider's recommendations, direction, and preventative guidelines for COVID-19. As an urgent measure to control COVID-19 and its further exacerbations of disease, the general public is advised to avoid self-treating with medicines and herbs which they assume might have a potential role in curing COVID-19, unless and until it is proven by clinical trials and studies. As in evidence-based medicine, the clinical trials play a pivotal role in determining the effectiveness of a particular treatment for a disease. Hence, there is a critical and necessary need for additional clinical studies that can assess the potential role of *Senna Makki* in treating COVID-19.

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