

Precautions and Alternate Measures in Covid-19

**Muhammad Torequul Islam\***

Department of Pharmacy, Life Science Faculty, Bangabandhu Sheikh Mujibur Rahman Science and Technology University, Gopalganj (Dhaka)-8100, Bangladesh

\*Corresponding Author: Muhammad Torequul Islam, Department of Pharmacy, Life Science Faculty, Bangabandhu Sheikh Mujibur Rahman Science and Technology University, Gopalganj (Dhaka)-8100, Bangladesh.

**Received:** September 21, 2020

**Published:** October 28, 2020

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After all, we haven't found an appropriate way to get rid of the current pandemic. Thus, we have to be alert adequately to protect ourselves and our family members from its harmful effects. There are various complications associated to our chosen preventive tools against this virus (severe acute respiratory syndrome coronavirus 2 or SARS-CoV-2).. For an example- proper storage and use of hand sanitizers. Acute and long-term toxic effects of the ingredients used in hand sanitizers have been shown in table 1.

(should be not less than 20 seconds). Effective public sanitization is another important issue. Because there is a lot of skepticism about the products used in them and their usage. In particular, use in vehicles and other public places should be appropriate. This can have a detrimental effect on the environment and ecosystem. Physicians are treating the coronavirus disease 2019 (Covid-19) patients in an uncontrolled, unapproved or non-specific ways with diverse drugs (e.g., chloroquine, hydroxychloroquine, chloroquine phosphate, azithromycin, lopinavir-ritonavir, interleukin-6 inhibitors, favipiravir and dexamethasone). Therefore, there is a chance of irrational treatment and misuse of drugs and anti-microbial resistance [2].

On the other hand, the selection and proper use of face masks are other important issues [3]. Carbon dioxide (CO<sub>2</sub>) load due to face masking (especially, those having breathing difficulty) during Covid-19 might result in other serious complications. Long-time face masking increases CO<sub>2</sub> re-exposure and binds to our blood in place of oxygen, which results asphyxiation. Generally, CO<sub>2</sub> is a gas that causes systemic effects. CO<sub>2</sub> displaces breathable oxygen and impairs pulmonary gas exchange. A reduced oxygen content of the air one breathe may slowly suffocate on CO<sub>2</sub> (without any visible abnormality or obstruction of breathing) due to selective oxygen depletion until he/she experiences permanent damage or death. CO<sub>2</sub> poisoning results central nervous system (CNS) damage and permanent deterioration of respiratory functions. Too much CO<sub>2</sub> cause hypercapnia. Increased levels of CO<sub>2</sub> also affect the pH level of our blood, turning it more acidic (acidemia) and, if prolonged, results acidosis, which is injurious to our body cells by a rise in acidity that leads to faltering functions of the heart (e.g., low blood pres-

Ingredients	Toxic effects	
	Acute toxicity	Chronic toxicity
Ethanol	Central nervous system and respiratory depression, lactic acidosis, ketoacidosis, nausea	Cardiac arrhythmia, acute liver injury, myoglobinuria, hypokalemia, hypomagnesemia, hypocalcemia, hypophosphatemia, cardiac arrest and even death
Isopropanol	Central nervous system and respiratory depression, skin and mucous membrane irritation, lactic acidosis, ketoacidosis, nausea	Ketosis, osmolal gap ketonemia, rhabdomyolysis, myoglobinuria, acute renal failure and even death
H <sub>2</sub> O <sub>2</sub> (3%)	Mild gastrointestinal and mucosal irritation, vomiting, skin irritation	Air embolism and even death (in rare cases)

Adopted from Mahmood., *et al.* [1]

**Table 1:** Toxic effects of hand sanitizer's ingredients used in Covid-19.

Adequate precautions should be also taken during washing hands with a soap or detergent, especially in maintaining washing

sure, cardiac arrhythmia). High acidity may result temporary or permanent nerve damage brought on by acidemia, and include delirium, hallucinations, seizures, respiratory failure, coma or even death. N95 masks have been used for fire/smoke protection for construction workers for many years. However, these are extremely uncomfortable and pretty harsh on the skin, and thousands of workers are becoming hypoxic and/or hypercapnic is unfounded.

However, some alternative measures can be taken during this pandemic. For example- nitric oxide (NO) is a vasodilator and it has anti-viral activity. To date, 2 clinical trials composed of 102 patients have been enrolled who receive NO by inhalation. Fumigation with the steam of *Eucalyptus globulus* (Labill.) leaves can prevent and/or treat respiratory tract diseases, including influenza. Besides this, *Thymus vulgaris* (L.) is also useful for the respiratory tract infections. In the latter case, we can use the decoctions or infusions of its aerial parts. *Eucalyptus* sp. is evident to exert anti-SARS-CoV activities [4]. Eucalyptol, a terpenoid which is free of side effects, is the major compound of *E. globulus*. It is proven for its bronchodilator, anti-inflammatory, and antioxidant activities [5]. Oil aerosols of *Eucalyptus* can inactivate influenza A virus in rooms. *Eucalyptus* vapor is also effective for this purpose [6]. *T. vulgaris* extracts have anti-microbial activities without non-toxic side effects. Moreover, these are known for their expectorant, spasmolytic and relaxant properties [7]. *E. globulus* vapors can be used as fumigation to disinfect hospital rooms and can be inhaled by viral infected patients for bronchodilator effects. On the other hand, *T. vulgaris* could be used to alleviate the side effects of conventional drugs used in Covid-19 [8]. Geranium and lemon oils are also effective in SARS-CoV-2 infection. Citronellol and limonene, the major compounds in geranium and lemon oil, respectively, are evident to downregulate angiotensin-converting enzyme 2 (ACE2) expression in lung epithelial cells [9]. Therefore, essential oils derived from aromatic herbs and medicinal plants might be alternative promising tools in Covid-19 [10]. Besides, these herbal formulations we must concern about the supplementation of vitamin C, D, E, dietary contents (e.g., *Nigella sativa* (L.), garlic, ginger, pine apple) and some minerals (e.g., Ca, Cu, Fe, Mn, Se, Zn). Many clinical trials have been done on the above-mentioned vitamins in Covid-19. Table salt (NaCl) deactivates viruses, while charcoal or clay adsorb virus particles. These can be used to wash vegetables, fish, meat and even masks in Covid-19 [11].

Basically, the long lines of coronavirus vaccine might progress in getting an effective vaccine but on the other hand the financial

crisis and political issues are arising day by day. So, avoiding all sorts of everyday casual complications is a huge challenge for us at the moment. In fact, nature does not deprive us of anything. Thus, we have to be pioneers in dealing with this pandemic in different ways without be upset.

### Conflict of Interest

None declared.

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