

Covid-19: Myths and Some Possible Arguments in Favors or in Contradictions

AUTHORS' INFORMATION:

Md. Manzurul Hasan, Ashraf Uddin, Md. Mehedi Hassan Onik, Md. Siyamul Islam
Department of Computer Science, American International University-Bangladesh
Dhaka, Bangladesh

CORRESPONDENCE:

Ashraf Uddin
Department of Computer Science, American International University-Bangladesh (AIUB)
408/1, Kuratoli, Khilkhet, Dhaka 1229, Bangladesh

doi: 10.51505/IJMSHR.2021.5102

URL: <http://dx.doi.org/10.51505/IJMSHR.2021.5102>

Abstract

COVID-19 has reached to an unimaginable height with several heterogeneous affect on the society and on our regular lives with respect to personal, social, mental, emotional, and economical parameters. To date, most of its physiognomies are not well-known to scientists and researchers. Several studies are being developed round the year to clearly understand the features of the disease. In addition, the lack of authentic information regarding corona virus has led to misinformation and myths in the society. However, myths and misconceptions do not remain myths when people start believing those by hearts despite any strong scientific backing. This study explores such trendy myths with possible arguments and facts. Myths widespreaded in the developing countries as well as mentioned by the World Health Organization (WHO) are critically analysed in this study. Precisely, the study also reveals the risks or gains attained by practicing those myths to fight COVID-19 pandemic. Total 17 COVID-19 related myths have been critically analysed to infer 3 major hypotheses by this study. Finally, the study concludes that legal steps and mass awareness campaigns against or for those myths must be introduced immediately to combat corona virus outbreak. To mention that, when the paper is being written, April-May, 2020, the world is suffering by the devastating Covid-19 pandemic as well as no vaccine or medicine has yet been invented. Furthermore, the paper may help the fellow researchers to deal with the similar diseases with similar symptoms.

Keywords: COVID-19, Corona Virus, Myths, Infectious Disease, Developing Countries, SARS-CoV

1. Introduction

“Science must begin with myths, and with the criticism of myths” is a well-known quote which was offered by Karl Popper to acknowledge the role of myths in the progress of science. The ancient period went through different myths leading to think philosophies and consequently

making progress in sciences, technologies, and engineering. Behind each science there remain some needs, philosophies, myths, experiments, results, validations, verifications, and lastly approvals, and so on. Since COVID-19 started at the end of 2019, the world has seen several myths flooded on internet regarding the infection and the treatment of COVID-19. Scientists and researchers have started working to seek if there is any truth behind those myths. This paper explores the myths of which many are mentioned on the World Health Organization (WHO)'s website ("COVID-19 Myth busters – WHO" 2020) to give some logical argument in favors or in contradictions. The rest of the paper discusses popular myths to conclude with a general discussion and associated recommendations. This is to mention that when the authors are writing the paper, April-May, 2020, no vaccine or medicine has yet been invented. Only symptomatic treatments are being carried out due to Covid-19 infections. The authors are writing the paper staying at home during lockdown period all over the world. A vulnerable condition remains everywhere. Possibly, this paper may help the world to deal with similar pandemic in future.

2. Method

As of 9 July 2020, WHO lists at least 27 myths involving the infection and the treatment of COVID-19 disease (myths, 2020). To date, no specific medicine or vaccine has been founded to treat or to prepare immune system against it. Meanwhile, throughout the world doctors are using different medicines of which some are working well. People have also started to spread different methods originated from myths of the developing countries (Islam, 2020). So, this study utilize myths identified by the WHO as well as mentioned in our previous study (Islam, 2020) is critically analysed to identify their pros and cons. In addition, with several literature backing acceptancy, risk, advantages of those myths are correctly identified.

3. Result

In this section, 17 popular myths are analyzed critically with the existing knowledge to discovered pros and cons of the myth practice during COVID-19 outbreak (myths, 2020).

3.1 Drinking warm water with garlic and ginger

Ginger is used as an herbal remedy for bloating, indigestion, and nausea. On the other hand, garlic is popular for high sulfur content, antiviral and anti-inflammatory properties. Therefore, garlic is considered as great remedy for flue, cold, cough, asthma, headaches, and menstrual pains. Hot water together with ginger and garlic is expected as weave magic for boosting immunity ("How to Make Ginger-Garlic Tea for Immunity and Weight Loss" 2020). If anything can provide better feel, reassurance and is not dangerous for health has a positive health impact. WHO advises to drink hot water with ginger and garlic as a healthy drink since it may give additional advantages in symptomatic treatment. However, not enough evidences are there that this is a life-saving treatment for COVID-19 ("Enjoy ginger, but it's not a 'cure' for COVID-19, says WHO" 2020).

3.2 Use of hydroxychloroquine with azithromycin

Hydroxychloroquine and chloroquine are found to be effective on SARS-CoV-2 and stated to be competent in COVID-19 patients. French COVID-19 patients were treated in a single arm protocol with 600 mg hydroxychloroquine in daily basis up to March 16, 2020 (Gautret et al., 2020). Besides, the patients were undergone rigorous nasopharyngeal swabs test. Based on the clinical presentation extracted from the tests, the patients were treated with additional azithromycin. The patients from another center who were untreated and cases refusing the described protocol were encompassed as negative controls. The end point was considered as the absence and presence of virus at Post-day6. The clinical result exhibits that, 22 patients had the symptoms of upper respiratory tract infection where 8 patients had the symptoms of lower respiratory tract infection and 6 were asymptomatic. In that research, the study of twenty cases exhibited a substantial drop of the viral carriage at Post-day6 insertion compared to much lower average carrying interval than testified of untreated patients (Gautret et al., 2020). USA Food and Drug Administration (FDA) alerts for using hydroxychloroquine for COVID-19 in restricted mode and must be limited to clinical prosecutions so that the clinicians can surveil the patients for adversative effects (“NIH begins clinical trial of hydroxychloroquine and azithromycin to treat COVID-19” 2020).

3.3 Adding kalonji to soup or meals

There is a myth that Kalonji seeds (*Nigella sativa*) have enough hydroxychloroquine (Emeka et al., 2014; "Coronavirus myth busted" 2020). Numerous studies have established the effectiveness of *Nigella sativa* seeds against various illnesses due to having medicinal components like thymoquinone. Moreover, kalonji has shown the potential energy to fight against different chronic illness such as mental and neurological illness, inflammatory conditions, cardiovascular disorders, infertility as well as numerous transmittable diseases due to viral infections (Yimer et al., 2019). In the religion of Islam, the prophet Muhammad (peace be upon him) prescribed this as a recovery of many diseases and told that Kalonji seeds and honey are general great medicines of all diseases ("Black Seed *Nigella sativa* A cure for every disease" 2016). Therefore, researchers explored the potentiality of *Nigella sativa* against COVID-19 through TaibUVID (Sayed et.al., 2020) method which means Taibah University anti-COVID-19 treatment. This claims TaibUVID method as an innovative evidence-based strategy for treating COVID-19 patients. A single dose of TaibUVID, is comprised of 1-gram Anthemis hyaline powder, a spoonful oil of *Nigella sativa* (or 2 grams seeds of *Nigella sativa*) and 1 spoonful of honey. This doze is applied to be chewed and swallowed by both COVID-19 patients and contacts with a certain period for three different levels i.e., contacts, mild and severe. This research claims that they have found extraordinary result against COVID-19 through TaibUVID method and expected as promising remedy for ending the infection of COVID-19.

3.4 Transmission through houseflies

To date, there are no reports of COVID-19 infection by bloodsucking arthropods like mosquitoes (Sanchez-Vargas et al., 2004; Adler and Wills, 2003; Weaver, 2013; CDC, 2020; “Can Mosquitoes Transmit the Corona virus? - American Mosquito Control Association” 2020). However, insects like cockroaches and houseflies may able to transmit the virus through coming

close contact with sneezes or cough droplets of infected individuals or contaminated surfaces (Kassiri et al., 2012; Vazirianzadeh et al., 2014; Vazirianzadeh et al., 2009). Recent studies (Sanchez-Vargas et al., 2004; Adler and Wills, 2003; Weaver, 2013; CDC, 2020; “Can Mosquitoes Transmit the Corona virus? - American Mosquito Control Association,” 2020) report that to transmit COVID-19, the oral-fecal route is not appeared to be accountable. However, feces can be considered as a probable significant basis of COVID-19 transmission. So that, any creature that get contacted with or feeding on infected individual’s feces can transmit COVID-19 (Dehghani and Kassiri, 2020). Houseflies and cockroaches consume various stuffs including nasal secretions, sputum, animal and human food wastes, fresh and dried blood, corpses, stool and so on. Therefore, they can transmit pathogens like virus and bacteria through their body hair, legs, and mouthparts (Dehghani and Kassiri, 2020). A study was conducted to investigate the possibility of COVID-19 transmission through cockroaches. The result reports that, among 15 cockroaches one positive result was found by testing cockroach surface with nested RT-PCR.

3.5 Use of bleach and other insecticides

Through several experiments, researchers stated that, various chemical antiseptics work well against the corona virus. The American Environmental Protection Agency (EPA) has acknowledged that these products destroy the novel corona virus. The permitted products include hydrogen peroxide, bleach, household cleaning and chemicals products i.e. soap, detergents etc. where few are recommended to use for household cleaning and few for human body sanitization. However, it is very important to utilize them appropriately and should not be ingested into human body. Extra care should be taken while applying them to skin surface because disinfectants kill virus only if it is used in right way. Sanitizing products can hurt eyes and skin. Moreover, they can also act as poison if they are swallowed or inhaled. Therefore, WHO recommends for applying normal methods for washing vegetables and raw fruits instead of using soap or bleach and not to add them on foods (“Based on Science...Do bleach and other disinfectants kill the corona virus | National Academies” 2020).

3.6 Drinking alcohol

Alcohol is widely used to make hand and other sanitizers. However, acute methanol is very much poisonous and a life-threatening metabolic, which causes neurological intoxication incorporate with methylated spirits. In Iran, methyl alcohol toxicity associated to the new corona virus disease has drawn the attention of clinicians. After the COVID-19 outbreak, a rumor “gargling and drinking alcohol could prevent the virus” was spread on social media. As a result, opportunistic people used bleach to remove the color of industrial methanol for selling colorless methyl alcohol which is not drinkable. People consumed intoxicating liquor with false assumption of being sanitized or get rid of Corona virus. As a result, at the end of April 2020, Irani hospitals encountered about 700 poisoning death due to consuming industrial-grade ethanol. This devastation has affected many cities all round Iran and leastwise 3100 people were hospitalized due to alcohol poisoning (Mehrpour and Sadeghi, 2020).

3.7 Temperature

WHO ensures there is no relation between temperature and COVID-19, but different statistics indicated that it may be a rigorous research topic. Because, according to Worldometer's statistics, in the third world countries (warm weather) infection rate and death rate are much lower than those of the first world countries (cold weather). On the other hand, it has been observed that transmission and death are inversely proportional to the temperature. It seems that most vulnerable temperature is 10-20 degree Celsius. The pattern is also observed in the statistics of Brazil over time. Below 10 degree Celsius, it has been observed that its transmission is proportional to temperature as it happened in Canada. There is a logic behind this that in above 20 degree Celsius fat inside the virus may not work well as well as below 10 degree Celsius protein structure surrounding the body of the virus may not work well (Yimer et al., 2019; Sayed et.al., 2020).

3.8 Risk of reinfection

Once health is recovered from COVID-19, antibodies are produced. There is an argument that can these protect from second time infection? What if Corona virus is nothing like measles and smallpox rather than diseases like fever, influenza, typhoid etc.? (Senanayake, 2020) According to WHO, blood of infected person contains positive antibodies ranges from lower to higher strength. Unfortunately, even the strong positive antibodies might not secure someone from a second time attack. Although reinfection was opposed by so many researches (Ota, 2020), such cases have been found in South Korea, China, and Japan. However, Korea Centers for Disease Control claimed that second time infection can be tackled much more efficiently than the first-time infection (Saplakoglu, 2020). A study found that out of 128 samples infected by the severe acute respiratory syndrome, or SARS-CoV, 90% possess very strong positive antibodies. The rate of reinfection is less with reduced chance of fatal death; people must not be reluctant to second time virus attack.

3.9 Being able to hold breath for 10 seconds

Being able to hold your breath for 10 seconds or more without coughing or feeling discomfort DOES NOT mean one is free from COVID-19 or any other lung disease. There is no evidence, but it indicates the strength of the lung and heart. It is assumed that strong lung and heart can prevent the malfunctions due to COVID-19. It has been practiced throughout the world specially in south Asian countries that holding breath for a long time can test if one has been infected with the coronavirus or not. The aforesaid test is somehow supported by the local doctors. Since the lungs filled with 50 percent fibrosis during a cold or cough attack, patients' lungs get weaker and provoke lengthy breath anyway ("Can you self-diagnose corona virus by holding your breath for 10 seconds?" 2020; "Myth" 2020). Both Stanford University and University of Maryland stated that young patient infected by corona virus can even hold their breath for more than 10 seconds ("Frequently asked questions and myth busters on COVID-19" 2020; Kishore and Grover, 2020). Yoga and meditation can of course increase the overall immunity of the body.

3.10 Frequent bath and long bath destroy virus

Frequent bath, hot sauna, sunbath etc. can rather increase immunity to some extent ("Can sun exposure kill the novel corona virus?" 2020). It has been a popular myth in the least developed countries (LST) that having bath for a prolonged period is beneficial for the body ("Corona virus" 2020). East Asian countries like Japan, China, Korea, Thailand, Vietnam even believed that hot water sauna kills corona virus ("Myth: Taking a sauna" 2020). Similarly, trends have been noticed in western countries that the sunbathe in open beach or sea surfing also kills corona virus. On a similar note WHO has officially stated that hot or cold water for a long period cannot kill corona virus, rather hot water can burn skin and cold water can increase the chance of catching cold many times ("COVID-19 Myth busters – World Health Organization" 2020). There is an assumption that corona virus is killed at 56 Celsius. During sauna or hot bath our body temperature can reach up to 38 Celsius which is not enough to kill corona virus anyway. Also, during hot bath or frequent bath, the heat only reaches up to our skin; the overall body temperate remains unchanged. Viruses like corona can live longer in cold temperature, taking a cold bath might backfire by boosting the virus's strength. But it is not that useless to have regular mild hot bath or sun bath on open beach since it might increase immunity (receiving plenty of vitamin D) by cleaning external viruses carried with skin (Ernst et al., 1990; Hussain and Cohen, 2018; "Can Vitamin D Lower Your Risk of COVID-19?" 2020).

3.11 Frequent bath and long bath destroy virus

Hand dryer may damage the outer facial structure of any virus, but it is not helpful if one is already infected. Normally, hand dryer and paper towel (tissue) are used in common restrooms and toilets which are strong source of spreading virus. Several hand dryers producing companies claimed to destroy the corona virus completely but that is not well proved. However, it has been studied that hand dryer is much more efficient than paper towel. WHO suggests for both hand dryer and paper towel once the hands are washed ("Myth: Hand-dryers" 2020). People also believe that air blow can damage the corona virus, which is not fully true. It is a matter of fact that not the hot air or weather are sufficient for killing corona virus fully (Gray, 2020). Although reliable company like Dyson claimed that their air blade can purify about 99.97% particles including bacteria and virus ("Dyson Airblade™ hand dryers | Dyson" 2020). In short, the overall working procedure of hand dryer raise questions since it sucks and spews the air from the restroom which is most likely already infected by Corona viruses ("Are hand dryers actually hygienic?" 2018).

3.12 Use of ultraviolet ray

Applying Ultraviolet (UV) ray on body parts is so dangerous. Instead, it is suggested to use soap and to wash the hands with soap for at least 20 seconds (Kishore and Grover, 2020; Quevedo-León et al., 2020). Several researchers have found that UV ray is somehow effective to disinfect corona virus from a surface (Enwemeka et al., 2020). They stated that 400-470 nm light is antimycobacterial against numerous bacteria (Bradley, 2020). It has also been experimented that UV disinfection can sterilize up to 99.9 % with 30 seconds. However, the UV ray is not at all usable on larger basis. The UV ray should only be used under the observation of adequate expertise.

3.13 Mustard oil

Some claims that mustard oil usage over noses may give a good result. A fat structure like mustard oil may damage another fat structure like virus body. It has been a trend in south Asian countries that the putting of few drops of mustard oil over nostrils will push the corona virus to stomach followed by a total clean. However, from medical point of view the use of mustard oil during viral attack is nothing new. Mustard oil can be effective over nostril around 7-8 hours due to presence of some antiviral elements in it. Mustard oil largely contains fatty acid, magnesium and selenium which has been used in cold or bacterial attack. There is no evidence that the use of mustard oil in nostril or any other body parts can protect someone from severe virus like corona virus (Barman, 2020; “Corona virus myth busted” 2020; Manohar, 2009). Rinsing nostril with saline water has also been discouraged by WHO. It may have some minor clues that saline is not so harmful for the body simultaneously it may kill the facial structure of the virus.

3.14 Pneumonia vaccine

Vaccines of Pneumonia may keep the lung sound because of symptomatic treatment. Pneumonia vaccine contains a beneficial bacterium called Streptococcus pneumonia. The main purpose of this vaccine is to protect lungs during severe pneumonia attack. Since corona virus somehow affect the lungs in similar manner, thus use of pneumonia vaccine might be useful in this regard too. Although WHO clearly states against its use, but some researchers identified that the COVID-19 patients those are already pneumonia vaccinated have better protection (“Does having had a pneumonia shot help prevent infection with corona virus?” 2020). In addition, use of other vaccines like the Haemophilus influenza is also discouraged by WHO and another research (“Myth: Vaccination” 2020). Alternatively, it encourages to use any vaccine or medicine that strengthen respiratory system.

3.15 Use of antibiotics

WHO’s suggestion is No. But in case of troublesome due to virus attack many other miscellaneous bacteria may create harm. So, in case of emergency this may be suggested by doctors. Immune system may fight good against virus but in case of bacteria if it is sometimes harmful and vulnerable. Since immune system is busy with virus the body may be a trapdoor for the external germs. Nevertheless, countries all over the world have heavily involved in usage of antibiotics in COVID-19 treatment. After getting infected with COVID-19 several other bacterial infections are frequently noticed. Some unofficially used popular drugs groups are Macrolide, Plaquenil and Avigan (“Bangladesh recommends controversial drugs for Covid-19 treatment” 2020; Baron et al., 2020; “Japan approval for Avigan to treat COVID-19 delayed” 2020; “What antibiotics kill Covid-19 (coronavirus)?” 2020.).

3.16 BCG injection

In the South Asia death rate is lower than that of the first world countries whereas necessary measures like awareness among the people and medical supports are weaker in the sub-continent than those of other countries. There is a so-called myth that the people of South Asia are proof to COVID-19. A nice role of Bacillus Calmette–Guérin (BCG) vaccine may be behind the screen

(“BCG Vaccine Fighting Corona virus in South Asia | Inter Press Service” 2020). BCG vaccine is a vaccine primarily used against tuberculosis. In countries where tuberculosis or leprosy is common. There needs a rigorous investigation to find the relationship between the two parameters COVID-19 and BCG injection.

3.17 Air conditioning

Air condition (AC) may increase the transmission of expansion of the virus infection within a community in a single room despite social distance be maintained within the room. AC temperature is a very comfortable temperature to the virus and with the circulation of air within the room virus may spread body to body. Droplets fall on the floor and air of AC system may blow them within the room and people may be easily get infected. A work has been done in this regard (Lu et al., 2020). It is generally observed that infection rate and death rate comparative very high among the nurses and medical doctors (Schwartz, 2020).

3. Discussion

The list of aforesaid discussed myths is not an all-inclusive. In fact, there are many more which are found mostly in the least developing countries. It is observed that most of the myths related to the treatment of COVID-19 talk about local herbal plants and extracts which contains several ingredients to improve immune system. So, all the myths are not fraud but needed to be studied and experimented. On the other hand, myths lead to propagate misinformation and hence, enhance the risk of infection by many folds. To fight those misinformation, proper public awareness from the concerned authority is also required. We hereby would like to sketch out some hypothesis:

- **Hypothesis 1:** COVID-19 is more vulnerable in cold countries than that of warm countries with respect to worldwide death versus infection ratio.
- **Hypothesis 2:** COVID-19 is being seen is less vulnerable in rural areas as well as among the poor (more physical activity) with comparison to that of urban areas and among the rich (less physical activity).
- **Hypothesis 3:** Day by day people are being adapted with COVID-19 (New Normal).

3. Conclusions

The paper focused on the myths spreaded mainly in developing and underdeveloped countries; some of which got popularity even in the developed countries as well. Beside the myths, the facts around the myths are also discussed to sketch the reality of those myths in this study. As said in the beginning of this study, myths play as a prime catalyst which provide fruit of thoughts to researchers. Finally, this study will significantly help the researcher in the development process of drugs and associated remedies related to COVID-2019.

Acknowledgments

The authors thank American International University-Bangladesh (AIUB) authority specially, the vice chancellor, dean, associate dean, director and department head for uplifting our moral during the whole publication process amidst the corona virus outbreak.

References

- Adler, P.H., Wills, W., 2003. Legacy of Death The History of Arthropod-Borne Human Diseases in South Carolina. *American Entomologist* 49, 216–228. <https://doi.org/10.1093/ae/49.4.216>
- Are hand dryers actually hygienic? New study found they spread fecal bacteria all over your hands, 2018. ZME Science. URL <https://www.zmescience.com/medicine/hand-dryers-hygienic-04321423/> (accessed 7.10.20).
- Bangladesh recommends controversial drugs for Covid-19 treatment [WWW Document], 2020. The Business Standard. URL <https://tbsnews.net/coronavirus-chronicle/covid-19-bangladesh/bangladesh-recommends-controversial-drugs-covid-19> (accessed 7.10.20).
- Barman, B.R., 2020. Fact check: Does putting mustard oil into the nose kill corona virus [WWW Document]. <https://www.oneindia.com>. URL <https://www.oneindia.com/india/fact-check-does-putting-mustard-oil-into-nose-kill-coronavirus-3091554.html> (accessed 7.10.20).
- Baron, S.A., Devaux, C., Colson, P., Raoult, D., Rolain, J.-M., 2020. Teicoplanin: an alternative drug for the treatment of COVID-19? *International Journal of Antimicrobial Agents* 55, 105944. <https://doi.org/10.1016/j.ijantimicag.2020.105944>
- Based on Science...Do bleach and other disinfectants kill the corona virus | National Academies [WWW Document], 2020 URL <http://sites.nationalacademies.org/BasedOnScience/do-bleach-and-other-disinfectants-kill-the-coronavirus/index.htm> (accessed 7.10.20).
- BCG Vaccine Fighting Coronavirus in South Asia | Inter Press Service [WWW Document], 2020. URL <https://www.ipsnews.net/2020/04/bcg-vaccine-fighting-coronavirus-south-asia/> (accessed 7.10.20).
- Black Seed Nigella sativa A cure for every disease [WWW Document], 2016. Islam web. URL <https://www.islamweb.net/en/article/157049/black-seed-nigella-sativa-a-cure-for-every-disease> (accessed 7.10.20)
- Bradley, D., 2020. Shedding ultraviolet light on corona virus. *Materials Today* (Kidlington, England).
- Can Mosquitoes Transmit the Corona virus? - American Mosquito Control Association [WWW Document], 2020 URL <https://www.mosquito.org/news/492656/Can-Mosquitoes-Transmit-the-Coronavirus.htm> (accessed 7.10.20).

Can sun exposure kill the novel corona virus? - Chinadaily.com.cn [WWW Document], 2020. URL

<https://www.chinadaily.com.cn/a/202002/08/WS5e3eb7aea31012821727601d.html>
(accessed 7.10.20).

Can Vitamin D Lower Your Risk of COVID-19? [WWW Document], 2020. Healthline. URL <https://www.healthline.com/nutrition/vitamin-d-coronavirus> (accessed 7.10.20).

Can you self-diagnose corona virus by holding your breath for 10 seconds? - Times of India [WWW Document], 2020. The Times of India. URL <https://timesofindia.indiatimes.com/life-style/health-fitness/health-news/can-you-self-diagnose-coronavirus-by-holding-your-breath-for-10-seconds/articleshow/75298629.cms> (accessed 7.10.20).

CDC, 2020. Corona virus Disease 2019 (COVID-19) - Transmission [WWW Document]. Centers for Disease Control and Prevention. URL <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-spreads.html> (accessed 7.10.20).

Coronavirus myth busted: Kalonji seeds do not have hydroxychloroquine and will not prevent COVID-19 - Health News, Firstpost [WWW Document], 2020. . Firstpost. URL <https://www.firstpost.com/health/coronavirus-myth-busted-kalonji-seeds-do-not-have-hydroxychloroquine-and-will-not-prevent-covid-19-8243291.html> (accessed 7.10.20).

Coronavirus myth busted: Mustard oil in your nostrils will not prevent COVID-19 - Health News, Firstpost [WWW Document], 2020. . Firstpost. URL <https://www.firstpost.com/health/coronavirus-myth-busted-mustard-oil-in-your-nostrils-will-not-prevent-covid-19-8168141.html> (accessed 7.10.20).

Coronavirus: Debunking 8 myths about the illness, 2020. The Mercury News. URL <https://www.mercurynews.com/coronavirus-who-addresses-myths-on-eating-garlic-and-taking-hot-baths-to-combat-covid-19> (accessed 7.10.20)

COVID-19 Mythbusters – World Health Organization [WWW Document], 2020. URL <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/myth-busters> (accessed 7.10.20).

COVID-19 Mythbusters – World Health Organization [WWW Document], n.d. URL <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/myth-busters> (accessed 7.10.20).

- Dehghani, R., Kassiri, H., 2020. A Brief Review on the Possible Role of Houseflies and Cockroaches in the Mechanical Transmission of Coronavirus Disease 2019 (COVID-19). *Arch Clin Infect Dis* 15. <https://doi.org/10.5812/archcid.102863>
- Does having had a pneumonia shot help prevent infection with coronavirus? [WWW Document], n.d. . WebMD. URL <https://www.webmd.com/lung/qa/does-having-had-a-pneumonia-shot-help-prevent-infection-with-coronavirus> (accessed 7.10.20).
- Dyson Airblade™ hand dryers | Dyson [WWW Document], 2020. URL <https://www.dyson.com/commercial/hand-dryers.html> (accessed 7.10.20).
- Emeka, P., Badger-Emeka, L., Eneh, C., Khan, T., 2014. Dietary supplementation of chloroquine with nigella sativa seed and oil extracts in the treatment of malaria induced in mice with plasmodium berghei. *Phcog Mag* 10, 357. <https://doi.org/10.4103/0973-1296.133282>
- Enjoy ginger, but it's not a "cure" for COVID-19, says WHO [WWW Document], 2020. URL <https://newseu.cgtn.com/news/2020-04-03/Enjoy-ginger-but-it-s-not-a-cure-for-COVID-19-says-WHO--Pn0Wuje3UA/index.html> (accessed 7.10.20).
- Enwemeka, C.S., Bumah, V.V., Masson-Meyers, D.S., 2020. Light as a potential treatment for pandemic coronavirus infections: A perspective. *Journal of Photochemistry and Photobiology B: Biology* 207, 111891. <https://doi.org/10.1016/j.jphotobiol.2020.111891>
- Ernst, E., Pecho, E., Wirz, P., Saradeth, T., 1990. Regular Sauna Bathing and the Incidence of Common Colds. *Annals of Medicine* 22, 225–227. <https://doi.org/10.3109/07853899009148930>
- Frequently asked questions and myth busters on COVID-19 [WWW Document], 2020 URL <https://worldwide.saraya.com/about/news/item/frequently-asked-questions-and-myth-busters-on-covid-19> (accessed 7.10.20).
- Gautret, P., Lagier, J.-C., Parola, P., Hoang, V.T., Meddeb, L., Mailhe, M., Doudier, B., Courjon, J., Giordanengo, V., Vieira, V.E., Dupont, H.T., Honoré, S., Colson, P., Chabrière, E., La Scola, B., Rolain, J.-M., Brouqui, P., Raoult, D., 2020. Hydroxychloroquine and azithromycin as a treatment of COVID-19: results of an open-label non-randomized clinical trial. *International Journal of Antimicrobial Agents* 105949. <https://doi.org/10.1016/j.ijantimicag.2020.105949>
- Gray, R., 2020. Will warm weather really kill off Covid-19? [WWW Document]. URL <https://www.bbc.com/future/article/20200323-coronavirus-will-hot-weather-kill-covid-19> (accessed 7.10.20).

- How To Make Ginger-Garlic Tea For Immunity And Weight Loss [WWW Document], 2020. NDTV Food. URL <https://food.ndtv.com/food-drinks/how-to-make-ginger-garlic-tea-for-immunity-and-weight-loss-2208241> (accessed 7.10.20).
- Hussain, J., Cohen, M., 2018. Clinical Effects of Regular Dry Sauna Bathing: A Systematic Review. *Evidence-Based Complementary and Alternative Medicine* 2018, 1–30. <https://doi.org/10.1155/2018/1857413>
- Islam, M. S., Onik, M. M. H., Hasan, M. M., & Uddin, A. (2020). Major challenges in combating epidemics like COVID-19 in the developing countries. *International Journal of Medical Science in Clinical Research and Review*, 3(05), Page: 411-430. Retrieved from <http://www.ijmscr.in/index.php/ijmscr/article/view/113>
- Japan approval for Avigan to treat COVID-19 delayed [WWW Document], 2020. URL <https://www.thepharmaletter.com/article/japan-approval-for-avigan-to-treat-covid-19-delayed> (accessed 7.10.20).
- Kassiri, H., Akbarzadeh, K., Ghaderi, A., 2012. Isolation of Pathogenic Bacteria on the House Fly, *Musca domestica* L. (Diptera: Muscidae), Body Surface in Ahwaz Hospitals, Southwestern Iran. *Asian Pacific Journal of Tropical Biomedicine* 2, S1116–S1119. [https://doi.org/10.1016/S2221-1691\(12\)60370-0](https://doi.org/10.1016/S2221-1691(12)60370-0)
- Kishore, D. (Prof) J., Grover, S., 2020. Frequently Asked Questions (FAQs) about Coronavirus Disease 2019 (Covid-19). *Epidemiology International* (E-ISSN: 2455-7048) 5, 14–21.
- Lu, J., Gu, J., Li, K., Xu, C., Su, W., Lai, Z., Zhou, D., Yu, C., Xu, B., Yang, Z., 2020. COVID-19 Outbreak Associated with Air Conditioning in Restaurant, Guangzhou, China, 2020. *Emerg. Infect. Dis.* 26, 1628–1631. <https://doi.org/10.3201/eid2607.200764>
- Manohar P, R., Pushpan, R. and Rohini, S., 2009. Mustard and its uses in Ayurveda.
- Mehrpour, O., Sadeghi, M., 2020. Toll of acute methanol poisoning for preventing COVID-19. *Arch Toxicol* 94, 2259–2260. <https://doi.org/10.1007/s00204-020-02795-2>
- Myths [WWW Document], 2020. who.int URL <http://www.emro.who.int/health-topics/coronavirus/myth-busters.html> (accessed 7.10.20).
- Myth: Hand-dryers kill the coronavirus – COVID-19 FACTS, 2020. URL <https://www.covid-19facts.com/?p=84292> (accessed 7.10.20).
- Myth: Taking a sauna or hot bath can kill coronavirus – COVID-19 FACTS, n.d. URL <https://www.covid-19facts.com/?p=83981> (accessed 7.10.20).
- Myth: Vaccination against pneumonia might protect you from coronavirus – COVID-19 FACTS, n.d. URL <https://www.covid-19facts.com/?p=84042> (accessed 7.10.20).

- Myth: You can self-check for coronavirus by holding your breath for 10 seconds – COVID-19 FACTS, n.d. URL <https://www.covid-19facts.com/?p=83896> (accessed 7.10.20).
- NIH begins clinical trial of hydroxychloroquine and azithromycin to treat COVID-19 [WWW Document], 2020. National Institutes of Health (NIH). URL <https://www.nih.gov/news-events/news-releases/nih-begins-clinical-trial-hydroxychloroquine-azithromycin-treat-covid-19> (accessed 7.10.20)
- Ota, M., 2020. Will we see protection or reinfection in COVID-19? *Nature Reviews Immunology* 20, 351–351. <https://doi.org/10.1038/s41577-020-0316-3>
- Quevedo-León, R., Bastías-Montes, J., Espinoza-Tellez, T., Ronceros, B., Balic, I., Muñoz, O., 2020. Inactivation of Coronaviruses in food industry: The use of inorganic and organic disinfectants, ozone, and UV radiation. *Scientia Agropecuaria* 11, 257–266. <https://doi.org/10.17268/sci.agropecu.2020.02.14>
- Sanchez-Vargas, I., Travanty, E.A., Keene, K.M., Franz, A.W.E., Beaty, B.J., Blair, C.D., Olson, K.E., 2004. RNA interference, arthropod-borne viruses, and mosquitoes. *Virus Res.* 102, 65–74. <https://doi.org/10.1016/j.virusres.2004.01.017>
- Saplakoglu, Y., 2020. Recovered patients who tested positive for COVID-19 likely not reinfected [WWW Document]. *livescience.com*. URL <https://www.livescience.com/coronavirus-reinfections-were-false-positives.html> (accessed 7.10.20).
- Sayed, S.M., Almaramhy, H.H., Aljehani, Y.T., Okashah, A.M., El-Anzi, M.E., AlHarbi, M.B., El-Tahlawi, R., Nabo, M.M.H, Aboonq, M.S., Hamouda, O., Alhadramy, O., 2020. The Evidence-Based TaibUVID Nutritional Treatment for Minimizing COVID-19 Fatalities and Morbidity and eradicating COVID-19 pandemic: A novel Approach for Better Outcomes (A Treatment Protocol). *American Journal of Public Health Research.* 8(2), 54-60.
- Schwartz, M., 2020. Nurses Die, Doctors Fall Sick and Panic Rises on Virus Front Lines. *The New York Times*.
- Senanayake, S., 2020. Can you get the COVID-19 coronavirus twice? [WWW Document]. *The Conversation*. URL <http://theconversation.com/can-you-get-the-covid-19-coronavirus-twice-137309> (accessed 7.10.20).
- Vazirianzadeh, B., Dehghani, R., Mehdinejad, M., Sharififard, M., Nasirabadi, N., 2014. The First Report of Drug Resistant Bacteria Isolated from the Brown-Banded Cockroach, *Supella longipalpa*, in Ahvaz, South-western Iran. *J Arthropod Borne Dis* 8, 53–59.

- Vazirianzadeh, B., Mehdinejad, M., Dehghani, R., 2009. Identification of bacteria which possible transmitted by *Polyphaga aegyptica* (Blattodea: Blattidae) in the region of Ahvaz, SW Iran. *Jundishapur Journal of Microbiology*; 2(1): 36-40.
- Weaver, S.C., 2013. Urbanization and geographic expansion of zoonotic arboviral diseases: mechanisms and potential strategies for prevention. *Trends Microbiol.* 21, 360–363. <https://doi.org/10.1016/j.tim.2013.03.003>
- What antibiotics kill Covid-19 (coronavirus)? [WWW Document], 2020. Drugs.com. URL <https://www.drugs.com/medical-answers/antibiotics-kill-coronavirus-3534867/> (accessed 7.10.20).
- Yimer, E.M., Tuem, K.B., Karim, A., Ur-Rehman, N., Anwar, F., 2019. *Nigella sativa* L. (Black Cumin): A Promising Natural Remedy for Wide Range of Illnesses. *Evidence-Based Complementary and Alternative Medicine* 2019, 1–16. <https://doi.org/10.1155/2019/1528635>