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## 3<sup>rd</sup> International Conference on **Biomedicine & Pharmacotherapy**

### **Covid paendemic and its impact on water and wastewater treatment plant**

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Current evidence indicates that the COVID-19 virus is transmitted through respiratory droplets or contact. Contact transmission occurs when contaminated hands touch the mucosa of the mouth, nose, or eyes; the virus can also be transferred from one surface to another by contaminated hands, which facilitates indirect contact transmission. Consequently, hand hygiene is extremely important to prevent the spread of the COVID-19 virus. The COVID-19 virus has not been detected in drinking water. Conventional water treatment methods use Aeration, flocculation, sedimentation, filtration and disinfection. The entry of COVID-19 Virus is likely by washing the hand. When the hand is washed the lipid cover on the virus is washed away resulting in total kill of virus. COVID-19 virus has been detected in the feces of some patients diagnosed with COVID-19. However, the quantity of virus released from the body, how long it will be released from the body after infection & whether the virus in the stool is infectious are not yet known. The risk is expected to be low based on data from previous outbreaks of related corona viruses, such as severe acute respiratory syndrome (SARS) and the Middle East respiratory syndrome (MERS). There have been no reports of fecal-oral transmission of COVID-19 to date.

The risk of transmission of the virus that causes COVID-19 through sewerage systems is thought to be low. Till date there is no evidence that this has occurred. In the 2003 SARS outbreak, Standard municipal wastewater system chlorination practices are sufficient to inactivate corona viruses, as long as utilities monitor free available chlorine during treatment to ensure it has not been depleted. Waste water treatment consists of Preliminary, Primary & Secondary treatment. Tertiary treatment is used where water is to be recycled. Removal of virus along with flocculated suspended solids cannot be ruled out. Aerosols are generated both in water & waste water treatment plants. This paper critically evaluates the effect of various treatment units of water & wastewater treatment plants on removal of Covid 19 and risk associated with the workers and end users of the finished product from the water & wastewater treatment plant.

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### **Does polyphenolic-rich fraction of cornsilk (*stigma maydis*) exhibits anti-hyperglycaemic properties in streptozotocin-induced diabetic rats?**

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Diabetes mellitus (DM) is an impairing chronic metabolic disorder associated with high blood glucose levels (hyperglycaemia) mainly due to insulin insensitivity. Polyphenols are known as potent compounds that are able to prevent the prevalence of diabetes. The present study was aimed to investigate in vivo anti-hyperglycaemic activity of a phenolic-rich fraction (PRF) of cornsilk and to characterize its principal constituents. The bioactive compounds in PRF were analyzed using the liquid chromatography-mass spectrometry/quadrupole time-of-flight (LC-MS/QTOF) system. The antioxidative potentials and anti-hyperglycaemic properties of PRF were subsequently evaluated by using in vivo methods in streptozotocin (STZ)-induced diabetic rats. Cornsilk extract was obtained using 40% ethanol, then sequentially fractionated into n-hexane, ethyl acetate and aqueous fractions. These fractions were used to evaluate the antioxidant capacities and to investigate protective effects on high glucose toxicity using human umbilical vein endothelial cells (HUVEC) as endothelial cell models via MTT assay. Results show that the ethyl acetate fraction had the highest antioxidant capacities. The PRF was found to be nontoxic to HUVEC. A high concentration of glucose (30 mM) treatment significantly induced HUVEC death, but PRF significantly restored the viability of HUVEC in a dose-dependent manner, compared to control. The LC-MS/QTOF analysis of PRF reveals the presence of 26 polyphenolic compounds and flavonoids being the major constituents. Flavonols, flavones, flavanols, flavone C-glycosides, flavonol O-glycosides, and isoflavonoids are the subgroups of flavonoids detected in the PRF. Flavanols were the major group of flavonoids detected in this PRF. Treatment of diabetic male rats with PRF at 100 and 200 mg/kg doses for 28 days significantly decreases blood glucose levels in diabetic rats. In brief, PRF could improve glycaemic control in diabetic rats which has a beneficial effect in correcting hyperglycaemia and preventing diabetic-related complications.

**Keywords:** Cornsilk, Polyphenolic-Rich Fraction, Anti-Hyperglycaemia

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