

47-2020-10892 | The Development of a Peptide Coating that Prevents Virus Adhesion to Surfaces
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The goal of this project is to develop environmentally-friendly and non-toxic coating that would prevent the adhesion of viruses.

My research group developed a peptide-based coating that prevents adhesion of proteins to surfaces when then avoids attachment of bacteria, fungi and other organisms. The peptide is a short peptide comprised of only three amino acids and therefore its synthesis is simple and can be done on a large scale. The peptide spontaneously forms a coating on various surfaces (metals, polymers, oxides, etc.). We have recently found that this peptide can also self-assemble into capsules that can adhere to surfaces and prevent protein adhesion. We encapsulated enzymes inside the particles and showed that the enzymatic activity is maintained.

COVID-19 is a unique virus as is can survive for a relatively prolonged time on surfaces. The virus comprises an RNA molecule surrounded by the viral capsid made by proteins. Since the peptide-based coating we developed can prevent proteins adsorption to surfaces, it is expected that it would prevent the adhesion of viruses. We propose to test this hypothesis initially with similar viruses (Infectious Bronchitis Virus, IBV) and later use a lab that can work with COVID-19. In parallel, we will study the ability of the peptide-based capsules that contain additional active agents.

The resulting coating would not only prevent the adhesion of COVID-19, but it would be general to all viruses, bacteria and other microorganisms. The peptide can already be manufactured on a large scale (hundreds of Kg and more) and can be sprayed onto different surfaces. It can be useful for coating surfaces at hospitals, during food preparation and production, as well as public transportation etc.

Patent Status

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