ABSTRACT

Certain strains of influenza A viruses (IAV) can potentially cause pandemics with high rates of mortality. Despite the availability of antiviral drugs, these viruses tend to undergo mutation and genetic reassortment, which can render existing treatments ineffective. Thus, therapeutic agents against IAV have to be continuously developed. Such potential agents come from brown algal sources, which are prolific sources of the sulfated polysaccharides fucoidan. In this study, the compound was extracted *Sargassum* spp. through acid hydrolysis, resulting in crude fucoidan with 0.22% yield that did not induce cytotoxicity to human embryonic kidney (HEK) 293T cells until the highest concentration tested, 1000 µg/ml. Although the compound was unable to be tested against IAV, the H1N2 subtype of the virus, which was characterized by quantitative reverse transcriptase polymerase chain reaction (qRT-PCR), was isolated from a combined nasal and throat swab. However, propagation of the H1N2 in the allantoic fluid of embryonated chicken eggs and Madin-Darby Canine Kidney (MDCK) cells appeared to be unsuccessful, as it did not agglutinate chicken red blood cells (RBC) in rapid hemagglutination test. To gain more information to support these preliminary findings, a systematic review covering the anti-IAV activities of all algal-derived compounds was conducted. A diverse group of compounds and extracts from multiple categories of algae exhibited such antiviral properties, some of which shared similar mechanisms of action. Polysaccharides, including fucoidan, acted by modulating host immunity and targeting viral attachment. Thus, fucoidan from brown algae could be an effective, cost-friendly, and non-toxic antiviral agent against IAV.

***Keywords**: Influenza A virus, Brown Algae, Fucoidan, Antiviral*