

## **ABSTRACT**

Viruses are often the cause of pandemics and or epidemics throughout the course of history. The possible solution in solving this problem is the use of antivirals and or vaccines. However, with the tendency of viruses to mutate, both are no longer effective due to resistances that often occur. The use of natural products such as *Sargassum* spp. are often considered as an alternative solution. *Sargassum* spp. is known to produce metabolites which retain therapeutic activities including antiviral. In this study, the extraction, antiviral activity and mechanism of actions from these produced metabolites are analysed and further investigated. Fucoïdan extraction was conducted using acid water extraction followed by a cytotoxicity testing which showed no cytotoxicity. Viral sample was screened using PCR assay and propagated. Amplification and cytopathic effect was observed but a negative result was found in rapid HA assay. This study also included a systematic review on the antiviral effects of these bioactive compounds. All studied *Sargassum* spp., except one, showed high antiviral activity with low cytotoxicity. Antiviral activity is believed to be derived from the presence of a key characteristic in the compound structure such as sulfate. Types of bioactive compounds, species of *Sargassum* and viral characteristics are several factors that play a role in the specificity and antiviral activity. The mechanism of action of the compounds is the inhibition of early stages of the viral life cycle; attachment, entry, penetration and or fusion.

**Keywords :** *Sargassum* spp, antiviral activity, bioactive compounds, fucoïdan, sulfated polysaccharide