

Efficacy of the aqueous extract of *Azadirachta indica* against the marine parasitic leech and its phytochemical profiling

ABSTRACT

Zeylanicobdella arugamensis (Hirudinea), a marine parasitic leech, not only resulted in the mortality of the host fish (Groupers) but also caused economic losses. The current study aimed to elucidate the antiparasitic efficacy of the aqueous extract of the *Azadirachta indica* leaves against *Z. arugamensis* and to profile the composition via LC-Q Exactive HF Orbitrap mass spectrometry. Different concentrations (25, 50 and 100 mg/mL) of *A. indica* extract were prepared and tested on the parasitic leeches. The total mortality of leeches was noticed with an exposure to the *A. indica* aqueous extract. The average times required for the aqueous extract at concentrations of 25, 50 and 100 mg/mL to kill the leeches were 42.65 ± 9.20 , 11.69 ± 1.11 and 6.45 ± 0.45 min, respectively, in a dose-dependent manner. The Orbitrap mass spectrometry analysis indicated the presence of five flavonoids (myricetin 3-O-galactoside, trifolin, isorhamnetin, quercetin and kaempferol), four aromatics (4-methoxy benzaldehyde, scopoletin, indole-3-acrylic acid and 2,4-quinolinediol), three phenolics (p-coumaric acid, ferulic acid and phloretin) and two terpenoids (pulegone and caryophyllene oxide). Thus, our study indicates that *A. indica* aqueous extract is a good source of metabolites with the potential to act as a biocontrol agent against the marine parasitic leech in aquaculture.