

Influence of Cyperus Rotundus Active Principles Inhibit Viral Multiplication and Stimulate Immune System in Indian White Shrimp Fenneropenaeus Indicus against White Spot Syndrome Virus Infection

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Abstract : The rhizome of Java grass, *Cyperus rotundus* was extracted different organic polar and non-polar solvents and performed the in vitro antiviral and immunostimulant activities against White Spot Syndrome Virus (WSSV) and *Vibrio harveyi* respectively. Based on the initial screening the ethyl acetate extract of *C. rotundus* was strong activities and further it was purified through silica column chromatography and the fractions were screened again for antiviral and immunostimulant activity. Among the different fractions screened against the WSSV and *V. harveyi*, the fractions, F-III to FV had strong activities. In order to study the in vivo influence of *C. rotundus*, the fractions (F-III to FV) were pooled and delivered to the *F. indicus* through artificial feed for 30 days. After the feeding trail the experimental and control diet fed *F. indicus* were challenged with virulent WSSV and studied the survival, molecular diagnosis, biochemical, haematological and immunological parameters. Surprisingly, the pooled fractions (F-III to FV) incorporated diets helped to significantly ($P < 0.01$) suppressed viral multiplication, showed significant ($P < 0.01$) differences in protein and glucose levels, improved total haemocyte count (THC), coagulase activity, significantly increased ($P < 0.001$) prophenol oxidase and intracellular superoxide anion production compared to the control shrimps. Based on the results, *C. rotundus* extracts effectively suppressed WSSV multiplication and improve the immune system in *F. indicus* against WSSV infection and this knowledge will helps to develop novel drugs from *C. rotundus* against WSSV.

Keywords : antiviral drugs, cyperus rotundus, fenneropenaeus indicus, WSSV

Conference Title : ICASF 2015 : International Conference on Aquatic Sciences and Fisheries

Conference Location : Los Angeles, United States

Conference Dates : April 03-04, 2015