

International Conference and Exhibition on

Marine Drugs and Natural Products

July 25-27, 2016 Melbourne, Australia

Efficacy of algae *Ecklonia cava* extract against viral hemorrhagic septicemia virus (VHSV)

Woo Song Lee, Young Bae Ryu, Ji Young Park and Dae Wook Kim
Korea Research Institute of Bioscience and Biotechnology, Republic of Korea

Production losses of olive flounder (*Paralichthys olivaceus*) were increased by infection of viral hemorrhagic septicemia virus (VHSV). Inhibition efficacy of extract from *Ecklonia cava* (*E. cava*) was studied to find whether extract and compound of *E. cava* have inhibition ability for VHSV in FHM cell line and when orally administered to olive flounder. Based on lower toxicity and effective concentration, *E. cava* extract (GT) and compound (eckol and phlorofucofuroeckol A) were selected for further studies. In pre, post and co exposure experiments, co exposure group showed highest level of inhibition rate. Antiviral activity was time dependently increased with exposure time between virus and GT and compound in FHM cell line. In experiments *in vivo*, different concentrations of GT were administered to olive flounder by orally. Afterward, VHSV was challenged and observed best survival rate. In trial 1 in olive flounder, relative percent survival (RPS) of oral administered GT at 500 and 50 µg/g/day were 31.25 and 12.50%, respectively. In trial 2, RPS of 1000, 500, 50 µg/g/day were 31.57, 0 and 0% respectively. In trial 3, RPS of 1 and 2 weeks were 26.31 and 31.57%, respectively. Oral administration of GT induced inflammatory cytokines responses (IL-1β, IL-6 and IFN-γ) at early stage of oral administration. Additionally, IFN-α/β, interferon stimulated genes (ISG15) and interferon inducible antiviral Mx was activated. These results suggested that oral administration of GT has antiviral activity against VHSV through early pro and anti-inflammatory activation and antiviral responses at later stages. In conclusion, we demonstrated an inhibition ability of *E. cava* extracts and compounds against VHSV in FHM cell line. Moreover, orally administered *E. cava* extract to olive flounder enhance efficacy of the immune protection against VHSV and demonstrated the anti-viral status in the fish.

Biography

Woo Song Lee has completed his PhD from Tokushima University and Post-doctoral studies from UCLA. He is the Director of Jeonbuk branch, Korea Research Institute of Bioscience and Biotechnology. He has published more than 140 papers in reputed journals and has been serving as an Editorial Board Member of repute.

wslee@kribb.re.kr

Notes: