

Accumulation of Phlorotannins in Abalone *Haliotis discus Hannai* after Feeding with *Eisenia bicyclis*

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Abstract : Investigation was carried out for the production of value-added abalone *Haliotis discus hannai* containing bioactive phlorotannin by feeding phlorotannin-rich seaweed *Eisenia bicyclis* 2 weeks prior to harvesting. Accumulation of phlorotannins was proceeded by feeding with *E. bicyclis* after 4 days of starvation. HPLC purification afforded two major phlorotannins. Mass spectrometry and ¹H-nuclear magnetic resonance analysis clarified their structures to be as 7-phloroeckol and eckol. Throughout the feeding period of 20 days, 7-phloroeckolol was accumulated in the muscle (foot muscle tissue) up to 0.18±0.12 mg g⁻¹ dry weight of tissue after 12 days. Eckol reached 0.21±0.03 mg g⁻¹ dry weight of tissue after 18 days. By feeding *Laminaria japonica* as reference, abalone showed no detection of phlorotannins in the muscle tissue. Seaweed consumption and growth rate of abalone revealed almost similar when feed with *E. bicyclis* or *L. japonica* 20 days. Phlorotannins reduction to half-maximal accumulation values took 1.0 day and 2.7 days for 7-phloroeckol and eckol respectively, after replacing the feed to *L. japonica*.

Keywords : abalone, accumulation, *eisenia bicyclis*, phlorotannins

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