

Piyanuch Nuchbunchuay 2007: Biosynthesis of Sesquiterpenoids and Eicosanoids in Tissues of Sandworm (*Perinereis* sp.). Master of Science (Fisheries Science), Major Field: Fisheries Science, Department of Fishery Biology. Thesis Advisor: Associate Professor Songsri Mahasawasde, M.Sc. 60 pages.

Radiochemical assay was used to study the synthesis of sesquiterpenoids and eicosanoids in sandworm tissues (*Perinereis* sp.). Different sandworm tissues were incubated with farnesoic as a precursor was incubated and L-[methyl-³H]methionine at different period of time (3, 6, 9, 12 hrs). It was found that tissues surrounding mandibles of sandworm (MO) at 12 hrs incubation produced highest radioactivity over brain and muscle (1903.83±464.2 dpm).

Identity of sandworm MO products was carried out on TLC, HPLC, GC and GC/MS. Originally, the MO products was identical with methyl farnesoate standard by TLC. However, when injected by HPLC, the highest radioactive section was shown not to be methyl farnesoate but more closely to arachidonic acid methyl ester. Moreover, when the substrate was changed from farnesoic acid to arachidonic acid higher radioactivity from the incubation was obtained. GC/MS analysis revealed that the highest amount of the sandworm MO incubation were C16-C22. Methyl farnesoate was appeared to be at the third rank of compound produced from the sandworm MO tissues.

Methyl transferase, an enzyme which was responsible in changing farnesoic acid into methyl farnesoate, was discovered in several sandworm tissues ie. mandibular tissues, muscle, brian and pharynx. The highest activity of such enzyme was presented in mandibular tissues.

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Thesis Advisor's signature

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