

Nutritional quality of tropical black long-spined urchin, *Diadema setosum* gonads: a comparative analysis between male and female gonads

ABSTRACT

Sea urchin gonads or roes are luxurious culinary and medicinal ingredient of which quality is greatly influenced by their biochemical compositions. This study aimed to assess and compare nutritional compositions between roe of male and female black long-spined urchin (*Diadema setosum*) inhabiting a tropical coastal area of Malaysia. The proximate nutritional composition of both male and female roe exhibited an order of protein > carbohydrate > lipid, which is contradictory to that of temperate *D. setosum*. Major amino acids in *D. setosum* roe were glycine, glutamate, aspartate, leucine and lysine whereas dominant fatty acids were C14:0, C16:0, C16:1, C18:1 n-9; C20:4 n-6 and C20:5 n-3. The ratio of essential amino acids to non-essential amino acids; unsaturated fatty acids (UFA) to saturated fatty acids (SFA); as well as PUFA to saturated fatty acids of roe from either gender were found to be similar i.e. 0.6, 1.2 and 0.5 respectively. Prominent protein as well as AHA and EPA content suggest *D. setosum* roe as an interesting subject recommended for investigation as active ingredient in nutraceutical, functional food and pro-health formulations. This study is also the first to illustrate some variations between tropical and temperate species of *D. setosum*.

Keyword: *Diadema setosum*; Gonad; Proximate analysis; Amino acids composition; Fatty acids composition