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Determination of Nutritional Aspects and Antioxidant Properties of Gonads of Red Sea Urchin- *Salmacis bicolor*†

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Abstract: Sea urchin gonads are of high economic significance owing to its multi-nutritional properties. The present study investigated the proximate composition, spectroscopic quantification of mineral, and fatty acid contents using ICP-OES and GC-MS and antioxidant properties of gonads of *Salmacis bicolor*. Proximate analysis revealed presence of moisture (71.93 ± 0.23%); ash (1.89 ± 0.23%); protein (9.25 ± 0.33%); lipids (12.31 ± 0.225%) and carbohydrate (4.62 ± 0.67%) on dry weight basis. ICP-OES detected high concentrations of Na (265.10 ± 0.23 µg/L); Ca (172.90 ± 0.11 µg/L); good levels of Mg (88.42± 0.34 µg/L) and K (40.325 ± 0.12 µg/L). GC-MS revealed high concentration of fatty acids such as heptadecenoic acid methyl ester (C17:0 - 25.07 ± 0.1 mg/ml), cis -10-heptadecenoic acid methyl ester (C17:1 - 23.98 ± 0.18 mg/ml), pentadecanoic acid methyl ester (C15:0 - 19.1 ± 0.19 mg/ml) and palmitic acid methyl ester (C16:0 - 12.01 ± 0.21 mg/ml). The gonads were identified to be good source of amino acids: lysine (432.12 ± 0.16 mg/g), valine (256.21 ± 0.18 mg/g); isoleucine (235.31 ± 0.27 mg/g), leucine (312.12 ± 0.12 mg/g) and histidine (156.45 ± 0.23 mg/g). *S. bicolor* gonads were estimated to contain antioxidants: total phenol content (8.354 mg GAE/g) and flavonoid content (10 mg QE/g). DPPH assay identified good radical scavenging effects with IC_{50} calculated to be 61.53 mg/ml. Hence it is concluded that gonads of *S. bicolor* possess could be considered as a good source of nutrients such as amino and fatty acids and antioxidants for human consumption.

Keywords: *Salmacis bicolor*; Gonads; ICP-OES; Fatty acids; Antioxidants.

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Conflicts of Interest

The authors declare no conflict of interest.