

**Iron content and *in vitro* iron availability in cooked *Sardinella melanura*
(Salaya) and *Carnax* (Para) spp.**

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Abstract

Iron deficiency is one of the most common nutritional deficiencies in Sri Lanka and is associated with problems like poor food supplies and inadequate amount of availability of iron forms in food consumed. Therefore a study was carried out using a modified *in vitro* iron availability method, to investigate the iron content and its availability in two fish species namely *Sardinella melanura* (Salaya) and *Carnax* spp. (Para).

The fish species were analysed to quantify the iron content in cooked fish flesh, cooked fish bones, cooking water and the *in vitro* availability of iron in cooked fish flesh by using atomic absorption spectroscopy. In both fish species the weights were calculated on a dry weight basis. *In vitro* iron availability was measured using the method of Svanberg *et al.*, (1993) with some modifications.

In cooked *Sardinella melanura*, the iron content in flesh was $335.3 \pm 6.8 \mu\text{g/g}$ whereas in bones, the iron content was $315.3 \pm 6.3 \mu\text{g/g}$. In cooking water medium, the iron content retained was $25.0 \pm 0.7 \mu\text{g/g}$. The *in vitro* available iron content was $66.2 \pm 4.5 \mu\text{g/g}$. In cooked *Carnax* spp. the iron content in flesh was $164.8 \pm 9.3 \mu\text{g/g}$ whereas in bones, the iron content was $101.1 \pm 8.2 \mu\text{g/g}$. In cooking water medium, the iron content retained was $15.0 \pm 2.1 \mu\text{g/g}$. The *in vitro* available iron content in cooked fish flesh was $58.9 \pm 4.4 \mu\text{g/g}$.

Iron contents in the fish flesh ($p = 0.000$) and fish bones ($p = 0.000$), cooking water medium ($p = 0.012$) of *Sardinella melanura* and the available iron ($p = 0.003$) formed after *in vitro* digestion were significantly higher than those of *Carnax* spp. As the cooking water medium contains a substantial amount of iron, the consumption of gravy in a fish curry along with the fish flesh may increase the amount of available iron.

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