

## Total mercury content of Indian squid *Loligo duvauceli* Orbigny from Tuticorin waters, south east coast of India

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Mercury content in *L. duvauceli* varied from 0.008 to 0.123 ppm wet weight (0.038 ppm to 0.202 ppm dry weight) with a mean value of  $0.018 \pm 0.002$  ppm wet weight ( $0.076 \pm 0.008$  ppm dry weight). These levels are well below the FAO/WHO recommended upper limit of 0.5 ppm.

Cephalopods form a major part of the by-catch in the shrimp trawling operation. The common Indian species are *Loligo duvauceli*, *Sepioteuthis lessoniapa*, *Dorvteuthis* sp. and *Loliolous investigatories*. Mercury, one of the potentially hazardous heavy metals, has drawn attention after Minameta disease in Japan<sup>1,2</sup>. The WHO/FAO has prescribed that the mercury content should not exceed 0.5 ppm in the edible portion of seafoods<sup>3</sup>. A knowledge about the level of total mercury in the edible portion of seafood therefore assumes significance. The present study has been made to determine the level of total mercury in the edible portion (mantle) of *Loligo duvauceli* from Tuticorin waters.

*L. duvauceli* samples were collected from the fish landing centre of Tuticorin, south east coast of India. Total length, breadth and the weight of whole squid were recorded. The head, tentacles and the skin on the mantles were removed. Mantle contributed about 71% of the total body weight. Moisture content was found to be 78.7%. The samples (2 g wet) were digested with 5 ml of 16 M HNO<sub>3</sub>, 2.5 ml of 18 M H<sub>2</sub>SO<sub>4</sub> and 1 ml of 10 M HCl for 15 min, at room temperature and then in boiling water bath for 40 min. The volume was made up to 50 ml with distilled water. Mercury content in the digested samples was determined by flameless atomic absorption spectrophotometry using a mercury analyser<sup>4</sup> (ECIL-MA 5800A). All the samples along with blank were prepared in triplicate and the average value taken. The results are expressed in ppm on wet weight and dry weight. Data were analysed statistically using Students' *t* test.

Size range of the squid samples varied from 135 to 230 mm in length and 30 to 65 mm on breadth. The weight of the whole squid ranged from 22.4 to

Table 1—Total mercury content (TMC) in Indian squid *Loligo duvauceli*

	No. of samples	TMC (ppm)	
		Wet wt	Dry wt
Total length (mm)			
131-161	4	0.009	0.042
161-190	20	0.017	0.080
191-230	4	0.021	0.099
Total breadth (mm)			
30-40	12	0.016	0.075
41-50	12	0.014	0.067
51	4	0.023	0.108
Total weight (g) (whole)			
20-30	4	0.012	0.056
31-40	5	0.010	0.047
41-50	14	0.018	0.085
51	5	0.021	0.099

93.9 g. Total mercury content in *L. duvauceli* (Table 1) varied from 0.008 to 0.123 ppm wet weight (0.038 to 0.202 ppm dry weight) with a mean value of  $0.018 \pm 0.002$  ppm wet wt ( $0.076 \pm 0.008$  ppm dry wt). The level of mercury content in the squid increases as the size (length and weight) of the organism increases. The results are significant at 5% level ( $P < 0.05$ ). The total mercury level reported is 0.006 ppm wet weight in squid from Andaman Seas<sup>5</sup>. A similar level of 0.1 ppm dry weight has been reported in *L. indica* from Bombay coast<sup>6</sup>. These are in agreement with the results of the present study.

The level of mercury content in the edible portion (mantle) of *L. duvauceli* from Tuticorin waters is well below the recommended upper limit of 0.5

ppm on dry weight and is fit for human consumption.

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