

NOTE III

CHITOSAN FROM SQUILLA

Squilla (*Oratosquilla nepa*) known by the local names 'Chelly' and 'Puchee' is abundantly available along the west coast of India inhabiting the burrows in sand and mud at the bottom of the sea. Although squilla available in Japanese seas is widely used in "Tempura" houses, the species available in India has not much commercial use as it possesses very little meat. However, during trawling for prawns a sizable quantity of squilla gets into the net, which is thrown back into the sea.

In the absence of any commercial fishing for squilla its abundance cannot be correctly estimated and is generally believed to be almost equal to that of prawns. The striking similarity between the chemical compositions of squilla and prawn waste (Table I) can be taken as a pointer to its probable utilization for making chitosan, a potential industrial chemical of varied uses, reported by Radhakrishnan and Prabhu (1971) and Madhavan and Ramachandran Nair (1974).

Chitosan was prepared from squilla with slight modification of the process reported earlier (Madhavan and Ramachandran Nair 1974). Since the meat content of squilla is very little and difficult to take out no attempt was made to separate the meat from the shell. It was boiled with 1% sodium hydroxide twice and the combined extract was concentrated to recover protein. The residue was further heated with 3% sodium hydroxide for 1 hr. to remove any residual protein. The protein free mass was deacetylated with 1:1 (wt/wt) sodium hydroxide at 100°C for 75 minutes, the extent of deacetylation being determined by the complete solubility in 1% acetic acid. After washing free of alkali the mass was dried in sun and pulverized to coarse particles.

Chitosan thus prepared from squilla is white in colour and gives a colourless and highly viscous solution in 1% acetic acid at 1% level. Because of this optical property of chitosan from squilla the necessity

TABLE I
Comparison of the proximate composition of prawn waste and squilla.

	Prawn waste	Squilla
Moisture %	76.62	78.84
Ash % (dry basis)	31.13	35.42
Protein % (,,)	39.76	44.71
Chitin % (,,)	23.08	14.7
Fat % (,,)	5.054	2.681

of bleaching as done in the case of prawn shell is obviated. Solution of chitosan thus prepared in acetic acid had a viscosity of 340 centi poises whereas chitosan from prawn shell gave viscosity of 180 - 200 centi poises.

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