B-71: Production of histamine in fish and dry-fish

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Histamine is produced in fish by bacterial species of the family Enterobacteriaceae. They convert histidine in the fish into histamine.

Presence of histamine in fish Skipjack (*Katsuwonus pelamis*), Tuna (*Thunnus albacares*), Anchovies (*Anchoviella commersonii*), Barracuda (*Sphyraena jello*), Devil ray (*Mobla diabolus*), Flying fish (*Exocoetus volitans*), Herring (*Amblygaster sirm*) Indian mackerel (*Rastrelliger kanagurth*), Sailfish (*Histiophorus gladius*), Sardine (*Sardinella longiceps*), Shark (*Carcharhinus* spp), Silverine half beak (*Hyporhampus jussimier*), Spanish mackerel (*Scomberomorus commersoni*), Trevally (*Caranx stellatus*) and Prawn (*Penaeus indicus*) and the dry-fish Skipjack, Anchovies, Herring, Spanish mackerel and Shark was determined. Histamine was extracted using methanol and examined by thin layer chromatography on silica gel G 60 using solvent system methanol : conc. ammonia (95 : 5) followed by spraying with Ninhydrin.

Enterobacteriaceae from fish were isolated using Violet Red Bile Glucose Agar [VRBGA]. Histamine producing bacteria from Enterobacteriaceae were isolated using Niven's medium. Histidine decarboxylating activity was examined by inoculating suspected cultures into Niven's broth and histamine free blends of the fish Herring and Skipjack.

Dry-fish Anchovies and Skipjack, fresh fish Skipjack, Herring, Tuna and Shark contained histamine in 75, 66, 20, 20, 11 and 11% of samples tested respectively. Of 111 samples of fish tested 30 contained microorganism grown on VRBGA medium. Of the 30 cultures, 9 gave positive reactions for histamine production in Niven's medium. Histamine producing bacteria originated from Indian mackerel, Skipjack, Herring and Trevally. Histidine decarboxylating activity was confirmed by growing in Niven's broth and identifying histamine production with bacteria isolated from Herring.

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