

Control of Black Discolouration in Raw Shrimps from Tropical Region

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Black discolouration on raw shrimps can cause a major marketing problem. Several methods are suggested to control black discolouration. Removal of head followed by thorough washing helps to reduce blackening. Dipping in sodium metabisulphite solution also prevents blackening. CSIRO (1976) permits 30 ppm SO₂ in meat as the upper limit and IS: 2237 (1985) permits 100 ppm. The present study was undertaken to find out the level of metabisulphite which could be used effectively in different types of prawns to prevent black discolouration.

Headless *Penaeus indicus*, *Penaeus monodon* and *Metapenaeus monoceros* (80-100/Kg) collected from local suppliers were dipped in 0.3, 0.4 and 0.5% sodium metabisulphite (100% purity) solution for 30 seconds. Residual SO₂ in the meat was estimated by the modified Monier William method (AOAC, 1975). The dipped shrimps were immediately packed in

crushed ice and residual SO₂ in meat was estimated at regular intervals.

Table 1 Shows the SO₂ content in the meat soon after dipping in metabisulphite solution and the changes in SO₂ during ice storage for 5 days. The residual SO₂ in the meat increased proportional to the concentration of the dip solution. Rapid decrease of residual SO₂ in the meat during initial periods of ice storage was noticed. 0.3% metabisulphite was sufficient to control black spot in *P. monodon* and *P. indicus* during ice storage for 5 days but black spot was noticed in a few pieces of *M. monoceros* at the end of 5 days ice storage. A dip in 0.4% metabisulphite for 30 sec prevented black spot in *M. monoceros* for 5 days ice storage. *P. monodon* was found to retain maximum residual SO₂. rapid loss of residual SO₂ from the meat during ice storage helped to bring down the residual SO₂ below 30 ppm.

Table 1. Changes in residual So₂ in the meat of metabisulphite treated prawns

Species	Concentration of Na ₂ S ₂ O ₅ %	Oh	Residual Sulphur dioxide, ppm					
			3h	24h	48h	72h	96h	120h
<i>M. monoceros</i>	0.3	43.67	21.84	18.19	14.55	10.93	8.77	2.27**
	0.4	52.40	32.02	27.70	15.28	14.55	14.19	13.83
	0.5	69.87	37.13	-	-	-	-	-
<i>P. monodon</i>	0.3	58.25	42.49	27.50	21.83	17.46	17.46	17.46
<i>P. indicus</i>	0.3	43.67	23.39	18.92	12.01	8.73	8.73	8.73

** Black spot was noticed in a few pieces

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