

PART III

NOTES AND ABSTRACTS

NOTES:

CANNING OF SMOKED EEL

On an average about 5000 metric tons of marine eels are landed every year in India. Even though it is a quality fish with high protein content as any other popular species, many fish eaters decline to prefer it to other low quality fish. One way to utilise this fish is to convert it into various products like smoked and canned eel fillets. As this product is likely to secure a foreign market also, investigations were carried out with a view to suggesting a proper method for its preparation. The data collected on this line are presented here, applying which an excellent smoked and canned product from eel can be turned out.

Absolutely fresh medium sized eels (*Muraenesox talbonoides* and *M. cinereus*) were procured from landing place. The surface of the fish was rubbed with coarse salt and the slime removed. The fish was then cut longitudinally into two halves and the bones removed. Fillets of 18-19 cm length and 2.5-3.0 cm width were made and washed with potable water. The fillets were dipped in 10% brine for 15 minutes, drained and dried for 30 minutes in a tunnel dryer (45-50°C) to remove surface water. They were then smoked for 8 hours according to the method of Solanki *et al* (1970). The smoked fillets were further dried for different periods to get varying moisture levels and cut into pieces of suitable size. In cases where moisture was less than

50%, the skin was peeled off at this stage and precooked in cans at 0.49 kg steam pressure for 15 minutes followed by draining and filling in cans (size: 301 x 307). When the moisture content was above 50% the fillets were precooked in perforated trays, skin removed and then filled in cans. The cans were then filled with hot refined ground nut oil (85°C), exhausted for 10 minutes, seamed and processed at 1.05 kg steam pressure for 45 mts. The canned samples were opened after two weeks for organoleptic and chemical analyses. Moisture and salt were estimated according to AOAC (1960) and phenols by the method of Foster and Simpson (1961). Micro kjeldahl method was followed for nitrogen estimation.

Table I shows the analytical data of eel fillets after smoking and also after subsequent canning at different moisture levels. The moisture contents increased generally during canning. Depending on the moisture level of smoked fillets, 42% to 54% of steam volatile phenols were expelled by the canning process. Even though considerable reduction was noted in nonvolatile phenols during canning, the trend was irregular. The loss of cook drip nitrogen from smoked fillets was proportional to the moisture contents prior to precooking as seen from the table. The same trend of change was noted in processing drip and drip nitrogen. This shows that the loss of drip and drip

TABLE I ANALYTICAL DATA OF SMOKED AND CANNED EEL FILLETS

Sample	Moisture %	Salt (DWB) %	Steam volatile phenols mg/100g (DWB)	Non-volatile phenols mg/100g (DWB)	Drip loss for 100g smoked fillets			
					During precooking		During processing	
					Volume: ml.	Nitrogen content: mg (DWB)	Volume: ml.	Nitrogen content: mg (DWB)
Smoked	66.60	10.92	51.76	15.57	9.20	390.1		
Cauned*	69.95	6.823	30.02	10.22			10.70	698.8
Smoked	60.00	10.37	53.11	14.25	7.385	246.1		
Canned	60.02	6.412	28.56	8.266			8.285	434.3
Smoked	51.94	9.574	50.47	12.07	5.286	163.7		
Canned	55.30	6.219	28.52	7.047			6.64	329.6
Smoked	44.33	9.026	48.51	14.73	3.298	105.3		
Canned	49.59	5.513	25.00	8.414			4.823	249.2
Smoked	32.07	9.679	50.05	13.84	0.685	29.41		
Canned	41.80	7.216	22.77	13.92			2.284	151.6

*from smoked fillets.

TABLE II OBSERVATIONS OF SMOKED AND CANNED EEL FILLETS.

Moisture content before canning %	Colour of canned fillets.	Odour	Flavour	Texture	Vacuum cm	Head space mm	Remarks
66.60	+	*	Smoke flavour, more juicy	Soft	19.5	8	Satisfactory
60.00	++	**	Moderate smoke flavour, juicy.	Moderately firm	„	„	Fair.
51.94	+++ (most attractive)	*** (most appealing)	More pleasant smoke flavour, juicy.	Firm	20	7	Excellent
44.33	++++	****	Smoke flavour, less juicy	Too firm	„	„	Good
32.07	+++++	*****	Smoke flavour, juiciness lost	Somewhat tough	„	8	Fair

+ Intensity of yellowish brown colour

* Intensity of smoke odour.

nitrogen can be minimised by reducing the moisture content of smoked fillets to an optimum minimum level without affecting other qualities.

Table II summarises physical observations on canned samples of smoked eel fillets processed at different moisture levels. If the moisture content of smoked fillets was very high the final product was found to be very soft, crumbling and

excessively juicy. As the moisture level was reduced the product became firm, and sufficiently juicy with appealing appearance, odour and flavour. At very low moisture levels, the final product became tough and lost the juiciness. So the optimum moisture level of smoked fillets at which sufficient juiciness, excellent odour and flavour were retained in the canned product was about 52%

Preliminary experiments showed that the storage life of canned sample increased as the moisture content of smoked fillets decreased. Smoked fillets at moisture level of round about 50%, on canning remained in good condition for 10 months after which gradual deterioration in quality took place.

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