

SODIUM AND POTASSIUM CONTENT OF SOME CLUPEOIDS OF WALTAIR COAST

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ABSTRACT

Sodium and Potassium content in the flesh of eight species of clupeoids was estimated and their quantitative values were given.

Estimation on sodium and potassium content in the flesh of eight species of clupeoids was made from fresh specimens. A sample of flesh of known weight was first converted into ash. The ash was dissolved in 50% nitric acid and the solution was made up to 100 ml in a volumetric flask with redistilled water. A sample of 50 cc was analysed for sodium and potassium contents in Delft Kipp Flame Photometer. Standard solutions of sodium and potassium of known concentrations were used for determining the concentrations of sodium and potassium in the sample. The sodium and potassium contents are expressed in mg/100 g of flesh (Table 1).

In *Stolephorus heterolobus* measuring 43 to 86 mm total length, the sodium content varied from 42 to 85 mg/100g. In *S. indica*, in specimens measuring 76 to 127 mm total length, the sodium content varied from 48 to 72 mg/

TABLE 1. Sodium and potassium content in the eight clupeoids.

Name of species	length Total (mm)	stage of Sex and maturity	(mg/100 g) Sodium	(mg/100 g) Potassium
<i>Stolephorus heterolobus</i>	43	Immature	42	443
	62	Male III	67	331
	66	Immature	52	303
	71	Female II	49	322
	72	Male V	54	403
	72	Female IV	85	379
	75	Immature	62	317
	86	Female II	47	331
<i>Stolephorus indica</i>	76	Immature	72	227
	76	Immature	48	307
	84	Immature	66	303
	121	Immature	65	317
	122	Female I	60	331
	127	Immature	68	425
<i>Stolephorus commersonii</i>	89	Immature	42	304
	92	Immature	63	379
	102	Immature	40	345
	111	Immature	57	417
	117	Immature	76	417
	121	Male II	77	265
	122	Female III	39	365
	123	Male IV	57	203
	<i>Thryssa mystax</i>	54	Immature	35
117		Immature	64	389
101		Male III	82	424
187		Female IV	63	275
194		Male V	58	345
200		Immature	64	207
208		Female IV	72	429
<i>Thryssa setirostris</i>	77	Immature	38	327
	131	Immature	75	389
	135	Female V	76	265
	137	Female V	57	413
	140	Female IV	40	379

TABLE 1. (Continued)

	140	Female II	85	317
	154	Female III	64	355
<i>Thryssa vitirostris</i>	44	Immature	52	345
	71	Immature	62	382
	80	Immature	80	292
	119	Immature	45	421
	130	Immature	71	355
	173	Female V	88	351
<i>Sardinella fimbriata</i>	77	Immature	42	425
	91	Immature	77	225
	96	Immature	85	425
	102	Immature	52	409
	104	Immature	66	445
	104	Immature	77	355
	126	Male II	42	275
<i>Sardinella jussieu</i>	108	Immature	72	302
	148	Male III	64	345
	152	Female IV	42	409
	166	Immature	40	431
	170	Female IV	56	309
	185	Female III	53	339

100g. Specimens of *S. commersonii* measuring 89 to 123 mm had a sodium content of 39 to 77 mg. In *Thryssa mystax*, the values ranged from 35 to 82, in specimens measuring 54 to 208 mm. *T. setirostris* measuring 77 to 154 mm had a sodium content ranging from 38 to 85, while in specimens of *T. vitirostris* measuring 44 to 173 mm, the values fluctuated from 45 to 88. In *Sardinella fimbriata* measuring 77 to 126 mm a minimum amount of 42 and a maximum of 85 was obtained in specimens measuring 77 and 96 mm respectively. In *S. jussieu* ranging in total length from 108 to 185 mm the sodium content ranged from 40 to 72 mg.

In *Stolephorus heterolobus* the potassium content varied from 303 to 443 mg/100g and in *S. indica* the potassium content varied from 307 to 425 mg/100g of flesh. In *S. commersonii* the potassium content ranged from 203 to 417 mg/100g.

Among the anchovies, *Thryssa mystax* had 207 to 429 mg/100g. *T. setirostris* had 265 to 413 mg/100g and *T. vitirostris* 292 to 421 mg/100g of potassium. Among the sardines, *Sardinella fimbriata* had 225 to 445 mg/100g and *S. jussieu* had 302 to 431 mg/100g of potassium.

Of the eight species, *Thryssa mystax* shows greatest variation and *Sardinella jussieu*, least variation in potassium content. *Thryssa vitrirostris* and *Stolephorus indica* have the highest and lowest average potassium content.

As for sodium, *Thryssa mystax* and *T. setirostris* show the widest range and *Stolephorus indica* the least range. A minimum of 35 mg/100g and a maximum of 88 mg/100g of sodium were recorded in *Thryssa mystax* and *T. vitrirostris*, respectively.

Sodium and potassium content do not show any relationship to size, except in *S. indica* in which potassium content increases with length (beyond 84 mm in total length). Thurston and MacMaster (1960) observed that in halibut, the sodium content decreases and potassium content increases with length. Thurston (1961c) observed that while there was no significant difference in sodium content of four species of fish he studied, season of capture and method of preservation had an effect on the sodium and potassium content. Thurston, Stansby, Karrick, Miyauchi and Clegg (1959) observed little correlation between sodium and potassium.

Thurston and Groninger (1959) recorded highest value of sodium in dorsal or light meat of *Oncorhynchus gorbuscha*; further, the values were higher in males than in females. The present study shows that males of *S. commersonii* and *S. jussieu* have more sodium than females, but in *T. mystax* and *S. heterolobus*, the sodium content shows no relation to sex. Further, except in one sample of *T. vitrirostris*, there is no difference in the sodium content of juveniles and adults. As for potassium, it was observed that females of *S. Commersonii* had more potassium than males, but in *S. heterolobus*, *T. mystax* and *S. jussieu*, there is no relation between potassium content and sex. In all the eight clupeoids, there is no difference in the amount of potassium between adults and immature specimens.

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