

## NICOTINAMIDE IN SOME SEAWEEDS

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The food value of marine algae lies mainly in their minerals and vitamins content (Chapman and Chapman, 1980). They are good source of vitamins like A,D,E,B series and C (Qasim *et al.*, 1976, Qasim and Barkati, 1985). Pakistan has a rich marine flora, so far more than 200 species of seaweeds have been reported (Shameel and Tanaka, 1992). The species of brown and red algae are relatively abundant compared to others. The brown algae are economically important species, however no data is available for their exploitation (Qari and Qasim, 1986, 1988). Similarly studies on biochemical composition revealed high potential for commercial utilization (Qasim, 1980, 1981, 1986). This short communication provides first hand data on the nicotinamide (niacin) content of five species of seaweed, found abundantly in winter season on Buleji coast of Karachi.

The seaweed species belonging to Pheophyceae (*Padina pavonica* and *Cystoseira indica*), Rhodophyceae (*Scinia indica*) and Chlorophyceae (*Caulerpa taxifolia* and *Codium elongatum*) were collected from Buleji coast, at low tide during winter season (October to December). In laboratory the seaweeds were washed, dried and ground to fine powder for analysis. Nicotinamide was extracted by treating a known amount of seaweed with hot ethanol and pet ether mixture. The extracts were eluted by passing through Amberlite XAD-2 column and estimated by the method described by Larsen (1958).

Results clearly reflect a pronounced difference in nicotinamide content in species of green, brown and red seaweed (Table I). The species of brown seaweed *P. pavonica* and *C. indica* had higher content than green and red seaweed. A gradual decline in niacin content was noted from October to December in all the five species studied and this may be due to change in temperature, which was lowest in December. Similar observations have been reported by Larsen (1958), who observed minimum niacin

**Table I. Nicotinamide in the five species of seaweeds. (Each value represent mean of three separate determinations).**

Seaweed Species	Nicotinamide in $\mu\text{g.g}^{-1}$ dried seaweed			
	Oct.	Nov.	Dec.	Average
<i>Caulerpa taxifolia</i>	8.3	7.1	5.3	7.06
<i>Codium elongatum</i>	5.6	3.2	2.5	3.76
<i>Padina pavonica</i>	43.5	34.5	31.2	36.40
<i>Cystoseira indica</i>	71.5	63.1	57.7	64.10
<i>Scinia indica</i>	26.5	22.1	17.5	21.80

content in a brown seaweed, *Laminaria hyperborea*, in winter and maximum in spring.

On comparison of niacin content of seaweed with the reported values of fruits, vegetables and cereals (Anonymous, 1975) the seaweed appear to be superior. In developed countries the cereal products are usually enriched with niacin. Our findings can safely recommend that seaweed species, after proper processing, can be used as vitamin supplement in feed and fodder.

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