

NOTE: II

UTILIZATION OF THE FISH WASTE SELF - BRINE OF FISH CURING INDUSTRY AS FARM FERTILIZER

Large quantities of self-brine accumulating in curing tanks during the process of commercial fish salting is mostly wasted at present. This liquor exuded from the fish during the process of salting contains considerable amounts of soluble proteins and minerals. Due to the presence of organic matter the self-brine quickly putrefies causing nauseating smell. This renders the whole surroundings insanitary and often leads to health hazards to neighbouring localities. Any economic method of utilising this waste brine and converting it into some useful product will be a tangible help to the fish curing industry. Hence, a method is worked for converting this waste self brine into a cheap and efficient fertilizer.

Self-brine samples collected from different fish curing sheds of Calicut region were used for this study. These samples were either dark yellow or brown in colour and were highly turbid with suspended particles. Known volumes of these samples were evaporated to dryness by exposing them to sun in enamel trays. The resultant product was dark brown in colour. The manure salt samples were stored in air tight bottles. The yield was calculated and samples were analysed according to the methods of A. O. A. C. (1955) for the factors usually associated with fertilizer value, *viz.*, moisture, water soluble chlorides, acid insoluble ash, total nitrogen, water

insoluble organic nitrogen, water soluble nitrogen, ammoniacal nitrogen, phosphorus, magnesium and calcium.

From Table I it can be seen that the chemical composition varied from sample to sample. The samples contained fairly good amount of Total Nitrogen varying between 3 to 3.7%. It is interesting to note that in almost all the samples excepting samples No. 2, more than 50% of total nitrogen is in the readily available water soluble form. It is also seen that the samples contain good amounts of plant nutrients like phosphorus, calcium and magnisium. However, this manure salt contains very high level of sodium chloride ranging between 78 to 84%. According to Firman (1949) "sodium chloride is not believed to have any direct value as a plant nutrient, yet it influences the total concentration of the soil solution and has been found effective for increasing crop yields under certain circumstances". The planters of Kerala have been applying common salt for coconut trees. This application is believed to improve the water retentivity and fertility of the soil. Since the manure salt recovered from self-brine contains nutrients like nitrogen, phosphorus, calcium, magnisium it may prove to be good substitute for common salt used for manuring coconut plantations. The manure salt will be considerably cheap than common salt.

Analysis of the manure salt samples

Sample No.	Yield %	Moisture %	Chlorides as NACL	Acid insoluble ash %	Total nitrogen g./100g.	Water insoluble organic nitrogen g./100g.	Water soluble nitrogen g./100g.	Ammonia cal nitrogen mg./100g.	Phosphorus as P_2O_5 mg./100g.	Magnesium mg./100g.	Calcium mg./100g.
1)	40.60	5.50	78.07	4.25	3.7100	1.400	2.310	294.00	598.0	56.80	576.0
2)	37.25	4.36	79.01	5.00	3.080	1.750	1.330	369.60	532.0	58.59	608.0
3)	37.25	6.45	84.76	2.25	3.500	0.840	2.660	548.80	465.0	54.61	544.0
4)	36.60	4.41	83.30	3.65	3.430	1.190	2.240	364.00	514.0	53.53	480.0
5)	37.50	7.48	84.22	3.85	3.570	1.540	2.030	467.60	523.0	52.43	560.0

The yield of manure salt from self brine ranged from 36.6 to 50.6% (weight by volume). The result of the study clearly shows that self brine could be converted successfully into a cheap fertilizer having wide applications.

ACKNOWLEDGEMENT

Our thanks are due to late Dr. V. K. Pillai, Director, Central Institute of Fisheries Technology, for the kind encour-

agement during the course of this investigation.

REFERENCE

A. O. A. C. 1955. *Methods of analysis*; Association of Official Agricultural Chemists. Washington.

Firman E. Bear. 1949. *Soils and Fertilizers* P. 113 John Wiley and Sons, Inc. New York.

Central Institute of Fisheries Technology Unit,
Calicut - 673 005.

*A. P. Valsan
T. S. Unnikrishnan Nair

*C. I. F. T. Unit, Colaba, Bombay - 400 005