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CHEMICAL COMPOSITION OF MONSOON RAINWATER OVER BANKIPUR, MALDA (WEST BENGAL)

Rainwater samples collected over Bankipur (Malda District) of West Bengal during the monsoon season of 1968 were analysed for the various constituents. The analytical data of some of the rainwater samples are given in Table 1.

A comparison of the integral frequency curves (Figs. 1 and 2) for concentrations of various ions as well as ratios between various ions present in rainwater over Calcutta and Bankipur showed the following differences.

(i) The rainwater in Calcutta is much more saline than at Bankipur.

(ii) Variations in concentrations of various ions present in rainwater over Calcutta are more significant than in case of Bankipur.

(iii) Although there is considerable variations in the absolute values of the ratios between various ions, the characteristic value (50 per cent integral frequency value, in many cases) is nearly the same.

(iv) The ratio Cl/SO₄ is higher in the case of rainwater over Bankipur than in the case of Calcutta. The lower value for this ratio in Calcutta appears to be due to local contribution of SO₄ through burning of fossil fuel.

Dew composition — A comparison of the chemical composition of the dew samples collected in the open and those collected from the mango leaves and twigs showed that the dew contains much more saline matter when in contact with the vegetable matter, than in its absence (Table 2).

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TABLE 1
Chemical composition of rainwater over Bankipur in 1968 monsoon season
(Concentrations expressed in parts per million)

Date 1968	Time of collection	Q (mm)	pH	SiO ₂	HCO ₃	Cl	SO ₄	NO ₃	Ca	Mg	Na	K
16 Jun	6-15-3-30	12·0	5·60	0·35	0·50	0·30	0·32	0·34	0·40	0·01	0·15	0·12
17 Jun	3-30-3-45	10·0	5·45	0·60	0·30	0·20	—	—	0·12	0·04	0·11	0·05
21 Jun	7-10-8-10	0·5	6·55	—	4·00	0·90	—	—	1·50	0·20	0·42	0·25
22 Jun	5-10-8-45	6·0	6·52	1·12	5·50	0·65	—	0·60	2·00	0·70	—	—
25 Jun	5-0-5-45	4·8	6·40	0·48	2·50	0·65	—	0·60	1·90	0·20	0·37	0·19
26 Jun	9-10-3-30	3·5	6·55	1·00	2·50	0·35	—	—	1·00	0·21	0·16	0·13
29 Jun	7-20-3-00	2·2	6·05	0·80	1·00	0·50	—	—	0·45	0·07	0·27	0·08
6 Jul	2-30-3-00	24·0	5·85	0·40	1·50	0·50	0·28	0·16	0·70	0·10	0·25	0·03
11 Jul	8-00-8-15	5·0	5·75	0·15	0·50	0·45	—	0·20	0·22	0·08	0·22	0·10
13 Jul	7-00-9-00	18·0	5·85	0·20	2·00	0·40	0·56	0·40	0·60	0·18	0·25	0·10
22 Jul	9-00-10-00	0·5	—	—	4·00	0·85	—	—	1·70	0·12	—	—
28 Jul	3-25-3-35	6·0	5·95	0·10	1·00	0·50	—	—	0·35	0·12	0·28	0·10
2 Aug	8-00-9-00	25·0	6·55	0·45	2·00	1·60	0·66	0·32	0·80	0·15	0·70	0·15
25 Aug	9-00-9-30	18·0	5·40	0·15	1·00	0·85	0·45	0·42	0·70	0·09	0·47	0·08
20 Sep	6-05-3-25	12·5	6·15	0·20	4·00	0·75	0·45	0·36	1·29	0·09	0·46	0·11
27 Sep	14-43-15-05	6·0	6·65	0·33	0·50	0·40	0·25	0·50	0·36	0·07	0·28	0·04
3 Oct	7-50-8-50	3·8	6·40	0·23	5·00	0·50	—	0·24	2·00	0·12	0·25	0·15
4 Oct	5-30-6-30	4·0	—	—	2·00	0·65	—	—	0·75	0·10	—	—

Q (mm) represents total rainfall in millimetres

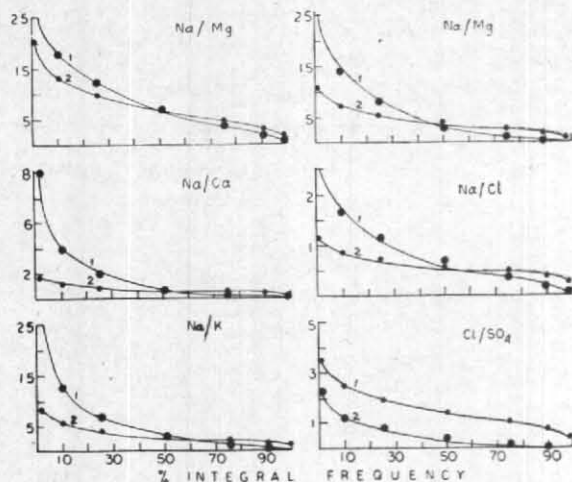


Fig. 1

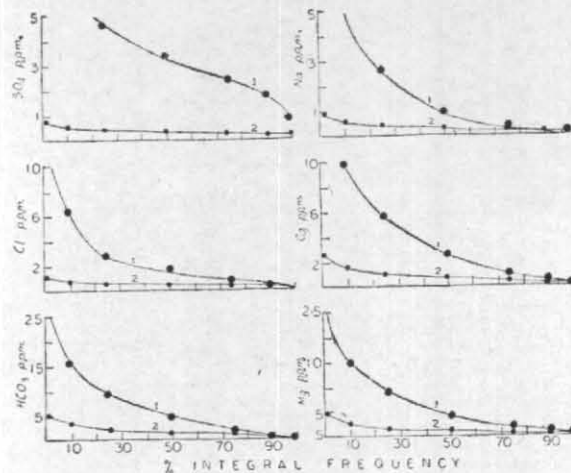


Fig. 2

Integral frequency curves for concentration of some ions present in rain water over Calcutta (1) and Bankipur (2)

TABLE 2
Chemical composition of dew samples at Bankipur (Oct-Nov 1968)
 (Concentrations expressed in parts per million)

Collection period	pH	SiO ₂	HCO ₃	Cl	SO ₄	NO ₃	Ca	Mg	Na	K	
8-22 Oct 1968	(a)	5.60	0.18	20.0	2.25	—	3.00	6.80	0.49	0.65	1.40
	(b)	6.20	2.30	24.0	17.0	—	2.28	10.50	3.89	1.00	4.70
23-31 Oct 1968	(a)	—	—	22.0	2.5	—	—	6.40	0.73	0.60	1.50
	(b)	6.30	2.35	28.0	14.5	2.48	2.04	11.00	3.04	0.75	3.45
1-15 Nov 1968	(a)	—	—	25.0	2.55	—	—	7.60	1.22	0.42	1.10
	(b)	6.10	2.80	26.0	12.50	2.88	1.80	10.50	2.74	0.60	2.90

(a) and (b) represent samples collected in the open and from mango leaves respectively

REFERENCES

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1969 (b) *Tellus*, **21**, pp. 95-106.