

LETTERS TO THE EDITOR

Orally Effective Hypoglycaemic Principles from *Coccinia indica*
Wight and Arn

SIR,—*Coccinia indica* is used as a household remedy for diabetes mellitus in the states of Bengal and Bihar in India. Fresh juice from the tuberous roots, stem and leaves is given either by itself or with certain metallic preparations in early cases of diabetes (Nadkarni, 1954).

The hypoglycaemic effect of the root-extract of this plant in alloxan diabetic rabbits was reported by Mukerji (1953), but according to Chopra and Bose (1925a,b), the fresh juice of the plant had no effect on the blood sugar of diabetic patients and fasting rabbits.

Work in this laboratory has shown that the ethanolic and aqueous extracts of sun dried and defatted root powder of *C. indica* contain an orally-effective hypoglycaemic principle. The present communication describes the biological assay, the dose effect relation, and the effect on alloxan diabetic rabbits, of this active principle.

The results obtained according to the methods described earlier for the biological assay (1961a) are given in Table I. The dose-effect relation (1961b) was found to be linear when log dose were plotted against the effect as a per cent of tolbutamide activity. The effects on alloxan diabetes (1962) are given in Table II.

TABLE I
BIOLOGICAL ASSAY OF ORALLY EFFECTIVE HYPOGLYCAEMIC FRACTIONS FROM *Coccinia indica*

Drug tested, g./kg.	Blood sugar response. Mean values (mg./100 ml.) for six rabbits in each group		Mean reduction in blood sugar per cent	Hypoglycaemic potency as per cent of tolbutamide	Significance
	Initial	4 hr. Pool			
Tolbutamide, 0.25 ..	(a) 112.9 ± 5.4 (b) 118.2 ± 6.1	84.7 ± 6.1 82.1 ± 4.3	25 30.5	100	<i>t</i> = 2.75 P > 0.01
Alcoholic extract of the root powder of <i>C. indica</i> left after ether extraction, 1.25 ..	(a) 120.1 ± 5.4 (b) 122.5 ± 5.3	101.85 ± 6.8 101.1 ± 5.9	15.2 17.5	58.9	<i>t</i> = 1.23 P < 0.3
Aqueous extract of the residue left from above, 1.25 ..	(a) 115.6 ± 5.7 (b) 112.3 ± 6.3	104.5 ± 5.5 104.4 ± 6.2	9.6 7.0	29.9	<i>t</i> = 1.6 P < 0.2
Control (distilled water)	121.2 ± 5.4	118.2 ± 5.9	2.5	—	—

TABLE II
HYPOGLYCAEMIC ACTION OF *C. indica* COMPARED WITH TOLBUTAMIDE ON THE BLOOD SUGAR OF ALLOXAN DIABETIC RABBITS

Drug, g./kg.	Mean blood sugar values for six rabbits in each group (mg./100 ml.)		Maximum fall in fasting blood sugar per cent	Significance
	Initial	Min. in 4 hr.		
Tolbutamide 0.25	(a) 202.3 ± 7.2 (b) 265.2 ± 6.8	161.6 ± 7.4 201.0 ± 6.4	20.1 24.2	<i>t</i> = 2.31 P < 0.05
<i>C. indica</i> extract (ethanolic) 1.25	(a) 235.2 ± 6.8 (b) 190.3 ± 7.2	220.2 ± 8.2 174.7 ± 7.6	6.4 8.2	<i>t</i> = 1.402 P < 0.2
Control (distilled water) ..	190.4 ± 7.6	186.3 ± 7.1	2.20	—

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These results indicate that the roots of *C. indica* contain an orally-effective hypoglycaemic principle comparable to tolbutamide.

Department of Biochemistry,
Birla College,
Pilani, India.

H. D. BRAHMACHARI
K. T. AUGUSTI

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