

decades' experience with Nepalese constables have been consulted, who confirm that they are very susceptible to respiratory diseases—which mostly prove fatal. It is further said that only a few of them live to draw pension after retirement. Policies have been issued to Nepalese constables under shorter term endowment in order to avoid heavy mortality strain—which manifest itself from 40th year onward.

In conclusion, I shall be failing in gratitude, if I do not express my indebtedness to our Chairman, Mr. S. N. Chatterjee, B.A., I.P., J.P., Commissioner of Police, Calcutta, for his kind permission to deal with Calcutta Police lives in this paper.

REFERENCE

DOTTO, B. B. (1948) .. *Indian Med. Gaz.*, **83**, 78.

STUDIES ON THE HYPOGLYCAEMIC EFFECT OF *TEPHROSIA PURPUREA* VAR. *PUMILA*

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Tephrosia purpurea or *sarpankha* has been in use in indigenous Indian medicine from time immemorial. In Sanskrit it is called *Banapunkha*, *Kalashaka*, *Kalika*, *Kandapunka* and *Kiriti*, in Urdu *Sarabhuka* and in Punjabi *Bansa* or *Sarphunka*. The plant grows all over India and Malay Peninsula. The leaves come out just before and flowers during the monsoons and both wither away in October. In indigenous medicine the seeds are used as an anthelmintic and antipyretic, for asthma and bronchitis, as a purifier of blood, and for liver, spleen and heart disease. The root is used as diuretic, to allay thirst and for diarrhoea (Kirtikar and Basu, 1933). Singh (1945) came across an article entitled 'Ziabatis Shakkri Ka Tariak, Ek Ajibulasar Jari Buti' (English translation: 'getting rid of diabetes, a wonderfully effective herb') in a booklet entitled 'Mikrazul-Imraz' by Hakim Mohd. Zaffurud Din Nassir, Editor of 'Hakim Deccan' who after testing it in a number of cases claimed it as a permanent cure for diabetes. The plant is a copiously branched, suberect, perennial herb 1 to 2 feet high with slender firm terete stems. Harbhajan Singh gave the roots to a diabetic patient for chewing and examined the urine for sugar before and after its administration and noted an appreciable fall in urine sugar of the patient. This work prompted us to carry out more work in this direction.

Method.—The fresh roots were washed to remove the earthy material, crushed in a pestle and mortar, and then the juice was extracted by squeezing in a tincture press.

Our experiments were carried out on normal rabbits, dogs and human beings. The juice was given by a stomach tube to the dogs, and in the case of rabbits, it was forced by means of a 5 cc. syringe through a catheter no. 8 passed in to the stomach. The experiments were started in the morning and the animals were given no diet the night before.

Control experiment.—To begin with, control experiments were done on each animal. It was given water only (no juice) on the first day and the blood-sugar level (b/s) determined before and after two and four hours of the administration, to find out the effect of 'struggle' due to passing of the catheter on b/s. It was found that there was no change in b/s at all and therefore this 'struggle' had no effect on it.

Next day the animal received 2 cc. of the extract per kilo of the body weight and the b/s noted before and 2 and 4 hours after administration. The quantity of the juice in later experiments was increased to 4 and 8 cc. per kilo body weight of rabbit and the effects noted.

Experimental observation

1. Control experiments with water:—

Animal	Normal blood sugar in mg. per 100 cc. of blood before administration of water	Blood sugar in mg. per 100 cc. of blood 2 hours after administration of water	Blood sugar in mg. per 100 cc. of blood 4 hours after administration of water
Rabbit ..	114	115	114
Do. ..	110	109	109
Do. ..	112	112	112
Dog ..	96	96	95
Do. ..	98	98	98

2. Effect of administration of 2 cc. of juice per kilo body weight:—

Animal	Normal blood sugar in mg. per 100 cc. of blood before administration of juice	Blood sugar in mg. per 100 cc. of blood 2 hours after administration of juice	Blood sugar in mg. per 100 cc. of blood 4 hours after administration of juice
Rabbit ..	113	105	112
Do. ..	111	100	105
Dog ..	99	88	97
Do. ..	105	95	102
Do. ..	100	91	98

3. Effect of administration of 4 cc. of root juice per kilo body weight :—

Animal	Normal blood sugar in mg. per 100 cc. of blood before administration of juice	Blood sugar in mg. per 100 cc. of blood 2 hours after administration of juice	Blood sugar in mg. per 100 cc. of blood 4 hours after administration of juice
Rabbit ..	115	99	94
Do. ..	112	105	93
Do. ..	114	105	100
Do. ..	114	101	97

4. Effect of administration of 8 cc. of root juice per kilo body weight. A set of two rabbits was employed :—

- (a) First rabbit had initial b/s 115 mg. per 100 cc. of blood. It became unconscious after 25 minutes of administration. Immediately the blood was taken for sugar estimation. It had dropped to 92. The reflexes were lost, the pupil was dilated and did not react to light. Respiration had become slower and shallower. The animal died after 65 minutes.
- (b) Second rabbit had initial b/s 114 mg. per 100 cc. of blood. It also became unconscious with the same symptoms after 37 minutes and died. B/s had dropped to 90.

On post-mortem examination in both cases, the stomach was found to be slightly congested, and the brain, especially the brain stem, was also congested. Other organs were normal.

Effect of administration to man.—One of us (K. N. S.) chewed on fasting stomach 20 gm. of the fresh roots. The taste was slightly bitter and it produced nausea which lasted for about 2 hours. The initial blood sugar was 90 and after one hour dropped to 85. There was no further fall in the second hour. So practically the amount of juice obtained from 20 gm. of roots had no effect on the blood sugar of man. As the root juice is quite toxic (8 cc. of the juice per kilo body weight killed the rabbits), further work in this direction could not be undertaken.

Effect of old juice.—The juice was kept for two days and then 2 cc. per kilo of the body weight was administered to the rabbits.

Animal	Normal blood sugar in mg. per 100 cc. of blood before administration of juice	Blood sugar in mg. per 100 cc. of blood 2 hours after administration of juice	Blood sugar in mg. per 100 cc. of blood 4 hours after administration of juice
Rabbit ..	114	110	113
Do. ..	115	111	115
Do. ..	109	110	110
Do. ..	115	114	114

It shows that it is only the freshly extracted juice which is active. The active principle seems to be very labile and decomposes on keeping.

Effect of juice in the various seasons.—The above experiments were done in summer and repeated in winter (January and February) when they showed no hypoglycaemic effect. It seems that there is a seasonal variation as well in the amount of hypoglycaemic principle.

Discussion.—The maximum fall in b/s in rabbits was 21 mg. per 100 cc. in safe doses. The higher dose killed the animals without producing further hypoglycaemia. The rabbit died in a state of coma when the blood-sugar level had dropped to 95. With insulin the convulsions appear when the blood sugar drops to 45 to 50. So the death of the animal is not due to hypoglycaemia but to some other toxic reactions. The drug in this crude form cannot be used safely for bringing down the blood-sugar level. The plant as a hypoglycaemic agent is slightly useful in summer but quite useless in winter due to the lability of the active principle. Further investigation on the isolation of the active principle responsible for the hypoglycaemic effect is being continued.

Conclusion.—The fresh juice of *Tephrosia purpurea* var. *pumila* can produce slight hypoglycaemia which is transitory and not permanent. The active principle is labile. The effect varies with the season.

Our thanks are due to Dr. P. N. Mehra for identifying the plant.

REFERENCES

- KIRTIKAR, K. R., and *Indian Medicinal Plants*.
 BASU, B. D. (1933). .. L. M. Basu, Allahabad.
 SINGH, H. (1945) .. *Indian J. Pharm.*, 7, 60.

ENLARGED PROSTATE, CLINICAL FEATURES, DIAGNOSIS AND MANAGEMENT

(A REPORT OF 12 CASES)

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THE object of this paper is to review the symptoms, diagnosis and management of enlarged prostate. Even ten years ago, the radical prostatectomy was a dreaded operation in India, although Peter Freyer (an I.M.S. officer) had introduced the method of suprapubic prostatectomy about fifty years ago. Now-a-days prostatectomy is fairly common in India, and in Delhi alone more than thousand prostatectomies have been done in ten years' time.

A short resume of twelve cases of radical prostatectomy is presented. Six of these patients