

PRELIMINARY STUDIES ON HYPOGLYCEMIC ACTIVITY OF *ANTICHARIS GLANDULOSA*

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(Received February 4, 1981; revised August 3, 1982)

## INTRODUCTION

The plant *Anticharis glandulosa* Aschers (Family Scrophulariaceae) is found in the vicinity of Jamshoro and Thano Bula Khan (Distt. Dadu) in the Province of Sind after summer rainfall. It is an annual viscid herb with glandular and hairy leaves. The plant is locally known as "Lumbo" and is used by the locals for washing clothes. *Anticharis glandulosa* is reported as a cure for diabetes mellitus in indigenous medicine [1]. It was, therefore, considered worthwhile to isolate the active principles of the plant and verify their hypoglycemic activity, if any.

## EXPERIMENTAL

*Preparation of Aqueous Extract of the Plant.* 40 gms of the plant *Anticharis glandulosa*, dried at room temperature, was powdered and extracted with boiling distilled water three times. The extracts were cooled, filtered and centrifuged (2000 r.p.m.) for ten minutes. The clear supernatant liquid was decanted and dried under reduced pressure. The residue was dissolved in 100 ml. of distilled water and used in the experiments.

*Isolation of Glanduloside.* Glanduloside (m.p. 133-34°) was isolated from *Anticharis glandulosa* according to the procedure reported earlier [2].

*Biological Assay.* Hypoglycemic activity of the plant extract and that of the glanduloside was tested on normal fasting rabbits, weighing 1.5 - 2.0 kg. The animals were divided into four groups, consisting of four rabbits each. They were fasted for 18-42 hrs prior to feeding the drugs; only water was allowed during this period. Blood samples were collected from the marginal ear vein of each rabbit and blood sugar concentration was determined according to the method of Folin-Wu as described by King [3]. Effect of two concentrations of plant extract and different fasting periods, on the blood sugar level of rabbits was observed and the data tabulated as follows:—

## RESULTS AND DISCUSSION

The aqueous extract of the plant when administered at 0.5g/kg body weight dose to normal fasting animals, showed a slight decrease in blood sugar after three hrs. When the dose was increased to 1.0 g/kg keeping the same fasting period (18 hrs), it displayed 24% increase in the

Table 1. Group A (Effect of feeding 0.5 g plant extract per kg body weight of rabbits — fasting period 18 hrs.).

| Rabbit No. | Initial B.S. | Blood sugar in mg/100 ml after |        |        | induced glycemia % |
|------------|--------------|--------------------------------|--------|--------|--------------------|
|            |              | 1 hr                           | 2 hr   | 3 hr   |                    |
| 1.         | 113.35       | 117.21                         | 115.46 | 107.17 | -5.44              |
| 2.         | 112.74       | 105.60                         | 107.45 | 105.95 | -6.02              |
| 3.         | 113.25       | 116.67                         | 110.56 | 107.78 | -4.83              |
| 4.         | 110.64       | 113.85                         | 109.0  | 104.25 | -5.77              |

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Table 2. Group B (Effect of feeding 1.0 g plant extract per kg body weight of rabbits – fasting period 18 hrs.).

| Rabbit No. | Initial B.S. | Blood sugar in mg/100 ml after |        |        | induced glycemia % |
|------------|--------------|--------------------------------|--------|--------|--------------------|
|            |              | 1 hr                           | 2 hr   | 3 hr   |                    |
| 1.         | 108.71       | 98.40                          | 106.23 | 102.18 | -6.00              |
| 2.         | 103.50       | 110.00                         | 105.70 | 96.68  | -6.60              |
| 3.         | 111.97       | 113.43                         | 105.82 | 103.00 | -8.01              |
| 4.         | 112.80       | 117.35                         | 111.43 | 105.16 | -6.77              |

Table 3. Group C (Effect of feeding 1.0 g plant extract per kg body weight of rabbits – fasting period 42 hrs.).

| Rabbit No. | Initial B.S. | Blood sugar in mg/100 ml after |        |        | induced glycemia % |
|------------|--------------|--------------------------------|--------|--------|--------------------|
|            |              | 1 hr                           | 2 hr   | 3 hr   |                    |
| 1.         | 121.35       | 122.65                         | 117.45 | 111.25 | -8.32              |
| 2.         | 115.65       | 118.32                         | 110.86 | 106.50 | -7.91              |
| 3.         | 118.32       | 116.13                         | 112.55 | 106.95 | -9.61              |
| 4.         | 118.84       | 119.24                         | 113.92 | 109.72 | -7.67              |

Table 4. Group D (Effect of 10 mg glanduloside per kg body weight – fasting period 24 hrs.).

| Rabbit No. | Initial B.S. | Blood sugar in mg/100 ml after |        |        | induced glycemia % |
|------------|--------------|--------------------------------|--------|--------|--------------------|
|            |              | 1 hr                           | 2 hr   | 3 hr   |                    |
| 1.         | 114.86       | 141.71                         | 150.15 | 145.39 | +26.58             |
| 2.         | 119.75       | 141.95                         | 160.26 | 155.40 | +29.77             |
| 3.         | 128.92       | 160.65                         | 173.14 | 156.97 | +21.75             |
| 4.         | 128.27       | 168.26                         | 182.00 | 145.25 | +13.24             |

hypoglycemia (Table 2). When the fasting period of the animals was enhanced to forty two hrs, a further increase in hypoglycemia by 22.3% was observed (Table 3). From

these results it seems that the plant possesses blood sugar lowering activity. Glanduloside does not possess any hypoglycemic activity when administered at a dose of 10

mg/kg body weight (Table 4). At higher doses, however, it caused death to all the experimental animals.

It is therefore, concluded that blood sugar lowering property shown by the plant is due to some other factor present in the extract and not due to the crystalline glanduloside obtained from the alcoholic extract of the plant.

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POSTSCRIPT

The authors wish to thank the Director, IIT Kanpur for his kind and generous support during the course of this work. One of the authors (S.L.N.) is grateful to the Government of India for the award of a Senior Research Fellowship during the course of this work.

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MATERIALS AND METHODS

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