INTRODUCTION

*Solanum nigrum* is one of the medicinal herbs which belong to family "Solanaceae". It has been used traditionally to treat various ailments such as pain, inflammation and fever. It is locally known as "Makoi". Its leaves, stems and roots are used as a poultice or to treat leucodermia and wounds while extracts of this plant are claimed to possess anti-inflammatory, antispasmodics, vasodilator and hepatoprotective effects. The fruits of *S. nigrum* have been reported to play an adjuvant role in the hepatoprotective property. Inhibition of lipid peroxidation and free radical scavenging activity has been suggested as a possible mechanism of action. Generally, black nightshade is very rich in nutritive values, which are capable of supplying minerals, vitamins, hormones and proteins. This herb elaborates a wide variety of medicinal properties such as anticancer, antioxidant, neuroprotective, cytoprotective, antimicrobial, antinociceptive and antipyretic properties. It has been claimed that *Solanum nigrum* particular are an excellent remedy for liver disorders.

Present investigation is therefore designed to determine the effect of crude ethanolic extract of *S. nigrum* on protein content of liver and kidney after daily administration of dose at the level of 250 mg/kg b.wt. for three, five and seven days respectively. It was noticed that the chronic administration for longer duration leads to significant increase in protein contents of kidney and liver.

**Keywords:** *Solanum nigrum*, liver, kidney, protein content.

MATERIALS AND METHODS

**Plant Material**

The whole plant of *Solanum nigrum* was collected from the Bundelkhand region. It was shed dried and powdered in an electric grinder. The powdered plant material was extracted in a soxhlet extractor and evaporated to dryness yielding a semi solid mass (9.8% w/w). After this extracts were dried in desiccators.

**Animals**

Sprague Dawley albino rats weighing 150-200 g were purchased from the National Defense Research Laboratory Gwalior. The animals were fed with commercial diet (Amrut, Feeds, Pranav Agro Industries LTD, Sangli) and water ad-libitum and maintained under hygienic standard laboratories condition; temperature maintained at 24-28°C and relative humidity at 60-70%. The study was permitted by the Institutional animal ethical committee with Reg. No 716/02/9/CPCSEA, Institute of Basic Science, Bundelkhand University, Jhansi, India.

**Dose preparation**

Oral administration of dose containing 250 mg/kg b.wt. of *S. nigrum* extract was given to experimental animals.

**Preparation of Liver and Kidney Homogenate**

The rats were sacrificed under light anesthesia (ether inhalation) at the end of 7 days of treatment. The Liver and Kidney were quickly removed, washed with cold water and weighed. They were then freed of fat and then homogenized in hypotoxic solution (8% NaHCO₃ solution). This homogenate was used to determine the protein contents in various samples (method of Lowry et al [12]).

**Experimental Protocol**

Animals were divided into two groups each having 5 rats. Group I rats received normal standard diets and vehicle only. Group II is experimental. Those rats received 2 ml and 4 ml of dose (250 mg/kg b.wt.) for 3 days, 5 days and 7 days chronically.
Statistical Analysis
Results of biochemical estimations are reported as mean ± S.E. if six animals in each group. The data were subjected to one way ANOVA followed by Tukey’s multiple comparison tests. PL 0.05 was considered statistically significant.

RESULTS AND DISCUSSION
Table 1 shows the effect of S. nigrum on the protein contents in liver when 2 ml and 4 ml dose was administered daily for 3 days, 5 days and 7 days. Its administration significantly increased the protein contents in liver at both the doses even when administered for 3 days. When the period of treatment was increased from 3 days to 7 days, there was a successive increase in the proteins contents. A dose of 4 ml was relatively more potent.

Table 1. Effect of daily administration of S. nigrum on protein content in Liver of adult rats. Proten content is expressed in mg/100mg of concerned tissue.

<table>
<thead>
<tr>
<th>Drug</th>
<th>Duration after treatment (in days)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Control</td>
<td>18.6±0.94</td>
</tr>
<tr>
<td>2ml</td>
<td>19.6±0.95</td>
</tr>
<tr>
<td>4ml</td>
<td>22.0±0.84</td>
</tr>
</tbody>
</table>

Table 2 shows the effect of S. nigrum on the protein contents in kidney. The administration of S. nigrum at 2 ml dose for 3 days did not provoke change but 4 ml dose increased protein contents significantly when administered daily for 3 days. When these doses were administered daily for 5 days and 7 days the protein contents were gradually increased.

Table 2. Effect of daily administration of S. nigrum on protein content in Kidney of adult rats. Protein content is expressed in mg/100mg of concerned tissue.

<table>
<thead>
<tr>
<th>Drug</th>
<th>Duration after treatment (in days)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Control</td>
<td>13.2±0.66</td>
</tr>
<tr>
<td>2ml</td>
<td>13.4±0.65</td>
</tr>
<tr>
<td>4ml</td>
<td>15.8±0.62</td>
</tr>
</tbody>
</table>

In the present study the ethanolic extract of S. nigrum was found to report the effect on the protein contents of liver and kidney of albino rat. In this chronic toxicity study, the S. nigrum treated groups did not show any significant changes in the protein content at 3, 5 and 7 days as compared to control group. Proteins are complex macromolecules with exquisite specificity. Omale James et.al. have investigated that the crude protein composition is either in the matured leaves of Cissus maustistriatta than the young leaves and roots. The importance of proteins cannot be over emphasized. Structurally and functionally they are the most diverse and dynamic molecules and play key roles in nearly all biological process. The presence of protein in this plant sample could justify its use in the management of Kwashiorkor a protein deficiency disease.

REFERENCES


