

spermatozoa clump within the lumen, could give the idea about the structural and hence the functional status of epididymidis.

#### **Materials and methods**

Adult male Wister albino rats, 48 in number, were used in this work. They were kept in an animal room, with a temperature of  $22 \pm 2^\circ\text{C}$ , the light - dark cycle was 12:12. Water was offered *ad libitum*. They fed a control diet with free access to food, except for one and half hour prior to melatonin containing meal. Dietary melatonin was provided as a single daily dose, 2 hours prior to sundown. Animals were divided into 6 groups, each consisting of 8 rats. Group I was the control: rats were provided with the same type of drug containing meal, but no drug was added (placebo), though, they were also deprived from food one and half hour prior to the time of treatment as other groups. Group II, III, IV, V and VI were given dietary melatonin as a daily dose of 125, 250, 500, 750 and 1000  $\mu\text{g/kg}$  body weight, in sequence, for 30 successive days. After the last day of treatment, all animals were killed by dissection under effect of diethyl ether. The whole epididymidis was removed, separated from the surrounding connective tissues under a dissecting microscope, weighed by an electric sensitive balance. Fixed in Bouin's solution, embedded in paraffin, and processed routinely for histological study. Then 5 serial sections of 5  $\mu\text{m}$  thickness from the mid- part (body) of the left organ were stained with Haematoxylin & Eosin and selected for study<sup>(10, 11)</sup>. epididymidis was removed, under a dissecting microscope, weighed by an electric sensitive balance.

Histological study was done both as descriptive and morphometric by a light microscope. The morphometric data were estimated by using Zeiss Integrating Micrometer – disk Turret I of 25 point system, (which measures the relative surface area by counting the points superimposed through a disk put on the microscopic eye piece during slide examination, so the number of these points positively related with the relative measurement of the surface area), the total points falling on each epididymidis wall, lumen, and spermatozoa clump within the lumen, were calculated. From each section 5 fields were taken randomly examined at 150X magnification. All the values were taken as mean  $\pm$  SD of 8 rats. The significance of difference between each of treated groups and its control was evaluated by student – t – test<sup>(12)</sup>.

#### **Results**

Descriptive and morphometric studies for all groups were done, as follows:

Epididymidis weight was unaffected significantly in all groups (Table 1).

Morphometric results:

(1) The number of points overlying the epididymal epithelial wall, was raised till the dose of 500 $\mu\text{g/kg}$ , then it was significantly decreased at the dose of 750 $\mu\text{g/kg}$ , and a great decrease was clear at group received 1000  $\mu\text{g/kg}$  (Table2).

(2) The number of points superimposed on the lumen of the epididymidis, followed an opposite manner to that of the wall (Table2).

(3) The number of points superimposed on the spermatozoa clump within lumen of the epididymidis, followed an opposite manner to that of the wall (Table2).

The descriptive histological result: