RESULTS

I - First group :

*** Histological picture (After Haematoxylin and Eosin staining):**

(1) Control :

a) Fundus:

The stomach wall was formed of mucosa which was thick due to presence of a mass of gastric glands, (Figs 1 & 2) extending deeply to the muscularis mucosa and between them was the lamina propria which was difficult to recognize as a separate entity because it was split up to occupy the spaces between the glands. The glands were simple, branched tubular, narrow, straight and perpendicular to the surface epithelium (Fig.2). As the stomach surface and pits of glands were lined by mucous secreting simple columnar epithelium, mucous neck cells of gastric glands were also present and tended to be irregular in shape as they were deformed by parietal cells (Fig.2). Zymogenic cells were pyramidal cells with basal basophilia and pale apical cytoplasm, with their nuclei nearer to the base. Parietal cells were ovoid and triangular cells with acidophilic cytoplasm and rounded central nuclei (Fig.2). However, the enteroendocrine cells couldn't be identified by Hx, E stain. Submucosa (Fig.1); was a loose connective tissue layer containing blood vessels, lymphatics and nerves. Musculosa was formed of an inner oblique, middle circular and outer longitudinal muscle layers (Fig.1). Serosa was the outer most layer covering a subserous layer of loose connective tissue containing blood vessels, lymphatics and nerves.

b) Pylorus

Pyloric mucosa showed deep pits was tortuous glands rarely sectioned along their length (Figs 3 & 3 A). Numerous mucous neck cells with pale cytoplasm, were observed.

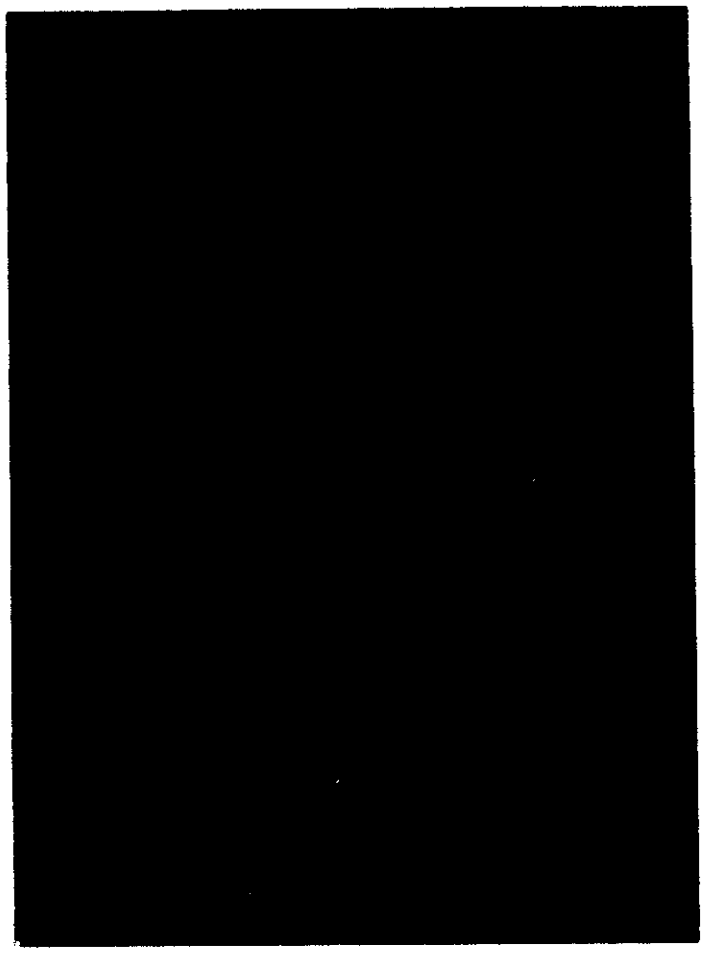

Fig. (1) : *A photomicrograph of a section in the fundus of the stomach of a control rabbit showing gastric glands (g), muscularis mucosa (B), submucosa (S) and Musculosa (M) with its 3 layers : inner oblique (0)Middle circular (C) and outer Longitudinal (L). (HX, E Proj..:10 Obj. :10).*

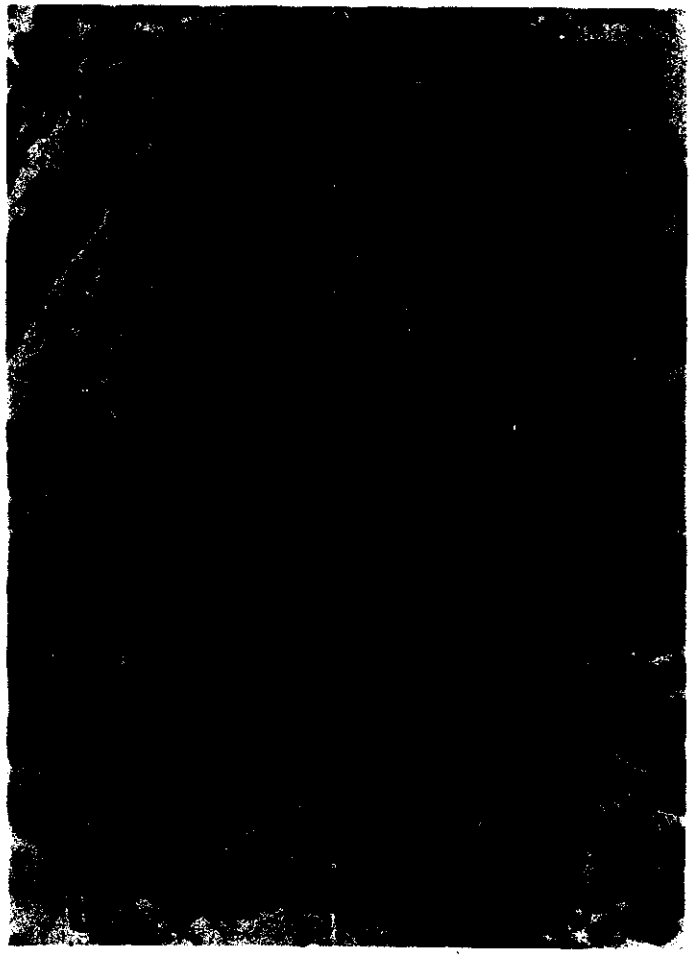

Fig. (2) : *A photomicrograph of a high Power magnification of the previous section showing gastric glands (g) Mucous neck cells (N), zymogenic cells (Z) and parietal cells (P) the muscularis mucosa (B). (HX, E Proj. : 10 Obj. : 40).*

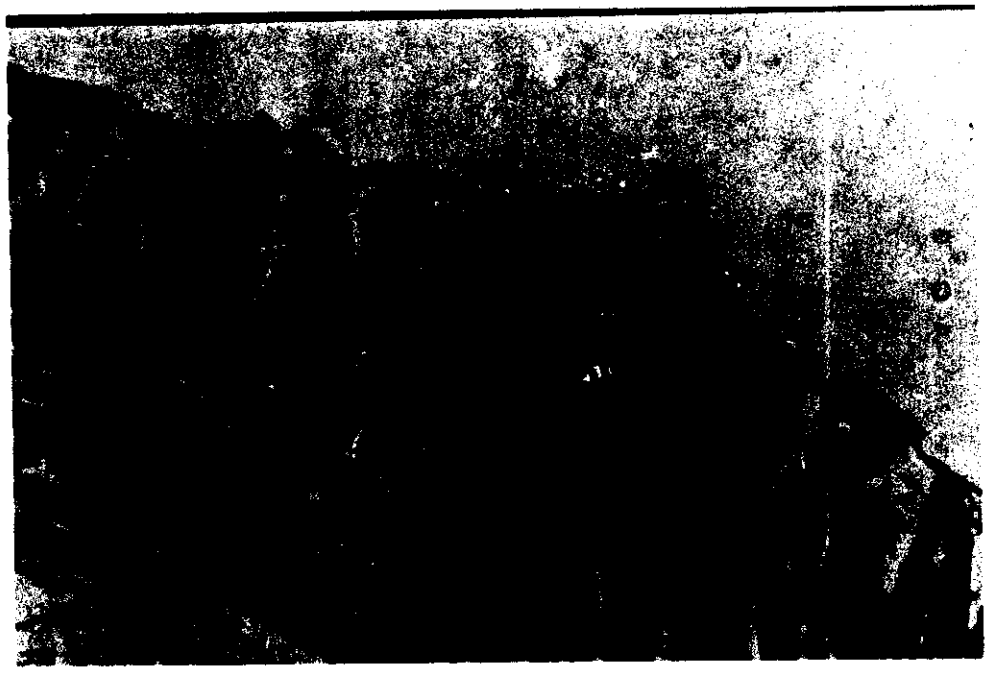

Fig. (3): *A photomicrograph of a section in the pylorus of a control rabbit showing pyloric glands (g) and ,apparently, numerous mucous neck cells with pale cytoplasm (m)*
(HX, E Proj : 10 Obj : 20).

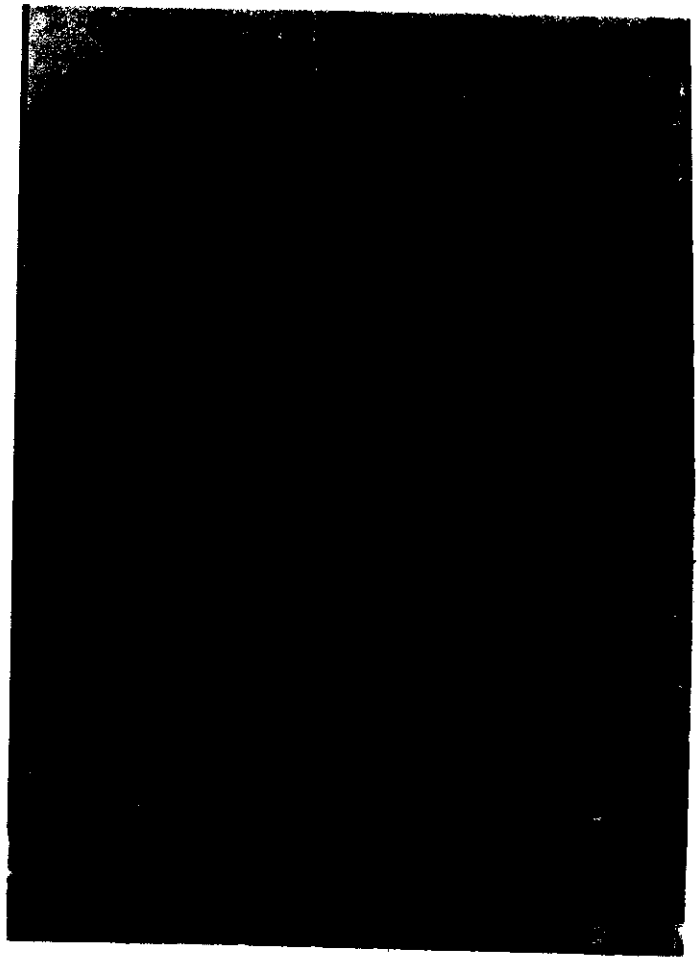

Fig. (3 A): *A photomicrograph of a high power magnification of the previous section showing pyloric glands (g) and mucous neck cells with pale cytoplasm (m).*
(H x, E. Proj. : 10 Obj. : 40)

c) Duodenum :

The mucosa was thrown into finger like projections called villi which were broad and leaf-like. Each had a core of connective tissue continuos with the corium and a central lymphatic capillary called central lacteal (Figs. 4&5). The covering epithelium was formed of columnar absorbing cells and goblet cells. Enteroendocrine cells were not easily identified in a heamatoxylin and eosin stained sections. Goblet cells had a clear vacuolated cytoplasm with expanded apex (Fig. 4). Crypts of Leiberkuhn appeared as simple tubular glands occupying the thickness of the corium (Fig.5). These appeared lined by columnar absorbing epithelium at their tops, goblet cells (Fig.5) & paneth cells at their bottoms which appeared as pyramidal cells with basophilic cytoplasm. Undifferentiated columnar cells and oligomucous cells were present in the crypts, with the first squeesed at their bottoms. Brunner's glands were lined by tall cubical cells with dark flattened basal nuclei and clear vacuolated cytoplasm & were present in the submucosa. Musculosa and serosa are the outer most layers.

d) Jejunum:

The villi were long and slender and goblet cells were more frequent (Fig 6).

e) Ileum :

It was provided with long slender villi with numerous goblet cells Each villus had a central lacteal (Fig.7).

f) Appendix :

The wall was thickened by an extensive lymphocytic infiltration. The crypts were short and few in number (Fig.8). They were lined by occasional paneth cells and many enteroendocrine cells. Goblet cells were few.

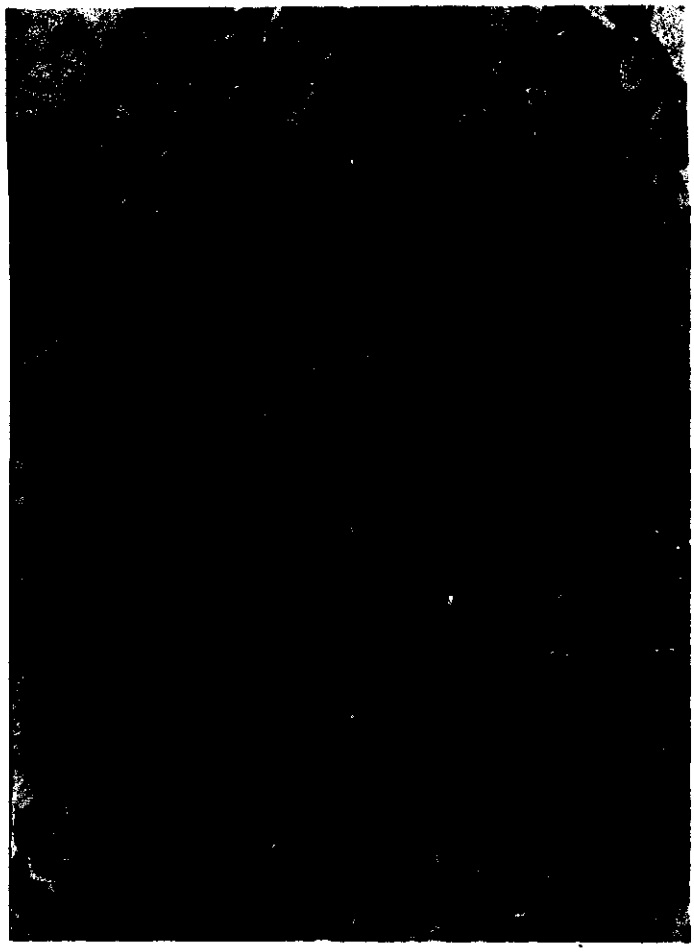

Fig. (4): *A photomicrograph of a section in the duodenum of a control rabbit showing surface columnar absorbing epithelium (e) with brush border, goblet cells (G), paneth cells (N) and central lacteal (C).*
(Hx, E Proj : 10 Obj : 40).

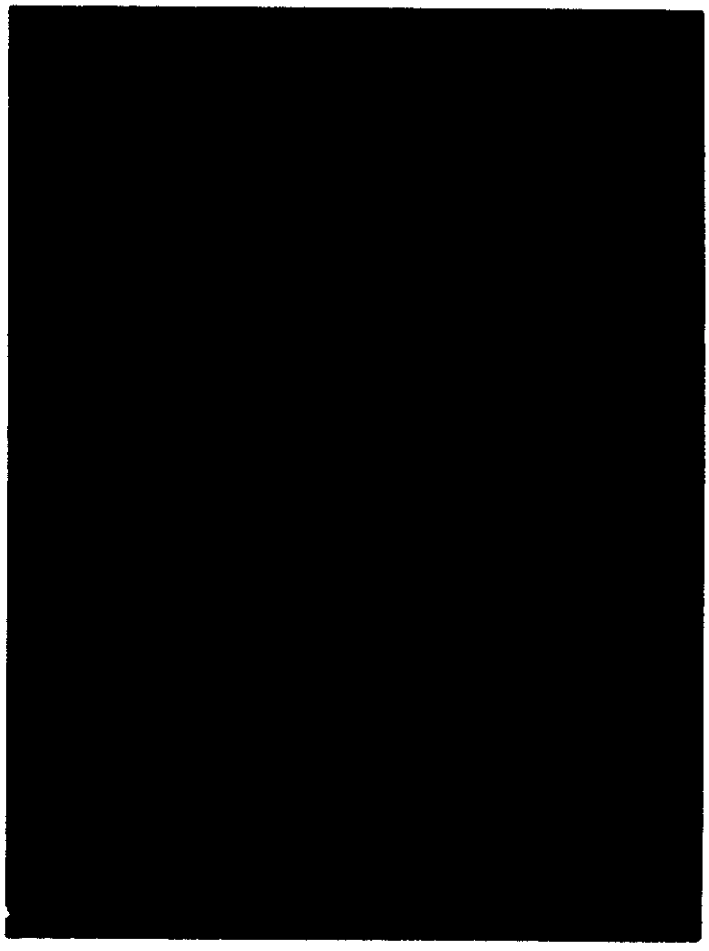

Fig. (5) : *A photomicrograph of a section in the duodenum of a control rabbit showing a crypt (R), Undifferentiated columnar and oligomucous cells (U) and Brunner's glands (g).*
(HX, E Proj : 10 Obj :40).

Fig. (6): *A photomicrograph of a section in the jejunum of a control rabbit showing villi (arrows), a crypt (R), surface columnar epithelium (e) and goblet cells (G).*

(HX, E Proj : 10 Obj : 40).

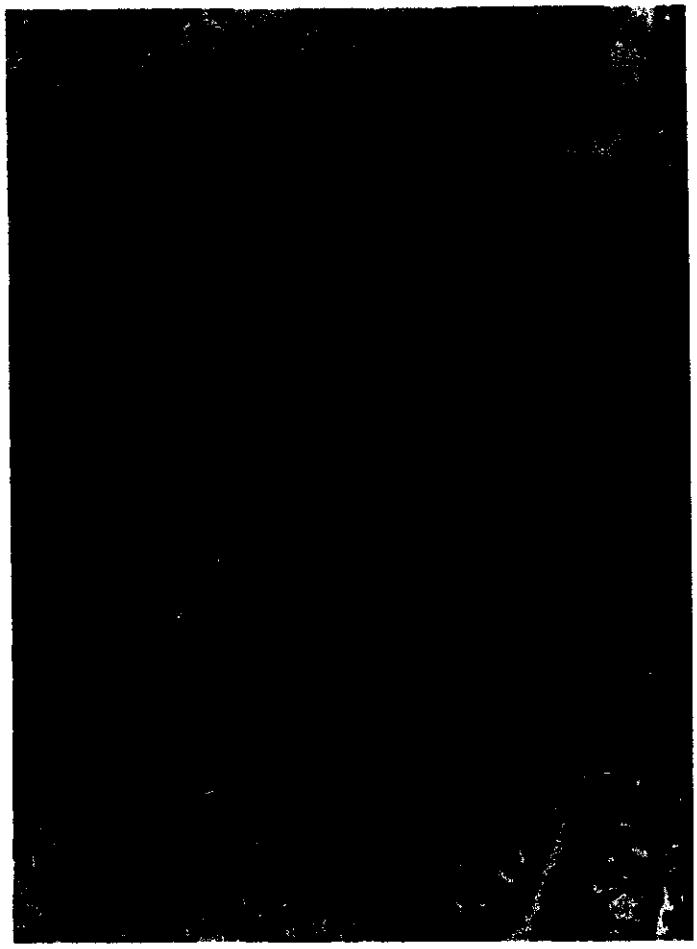

Fig. (7): *A photomicrograph of a section in the ileum of a control rabbit showing villi (arrows) with covering simple columnar absorbing epithelium (e) and goblet cells (G).*
(HX,E Proj : 10 Obj : 40).

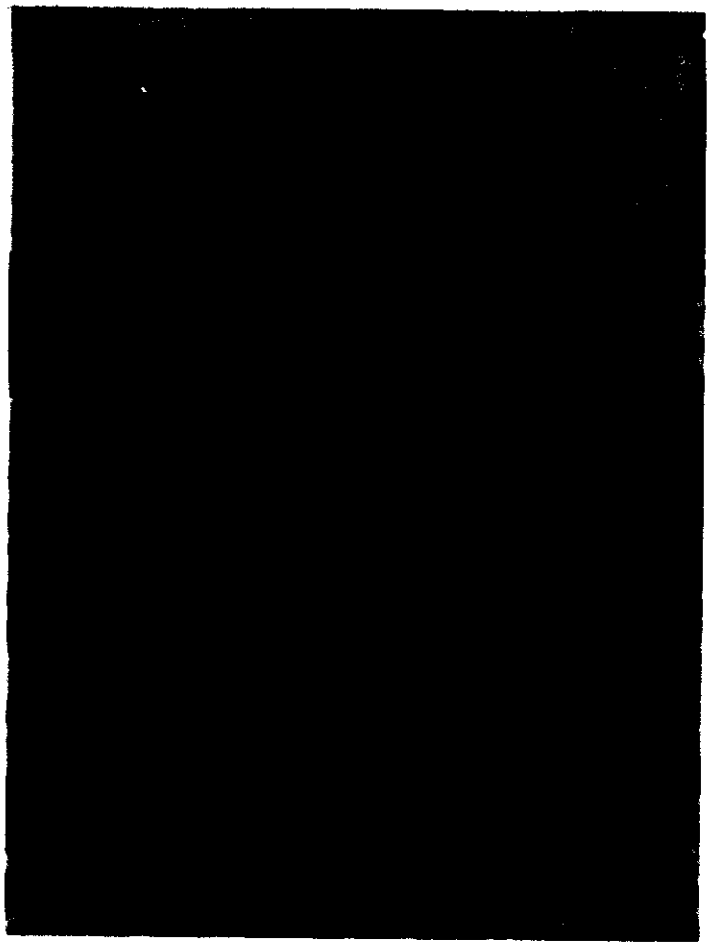

Fig. (8): *A photomicrograph of a section in the appendix of a control rabbit showing surface and crypt epithelium (e), goblet cells (G) and a crypt (R).*

(HX, E Proj : 10 Obj :40).

g) Colon :

The mucosa was folded and contained crypts only (No villi). The epithelial lining was a single layer of simple columnar epithelium with goblet cells (Fig.9). The crypts were lined by the same cells as in the small intestine except that there was no paneth cells. The corium was greately reduced by the numerous crypts.

h) Rectum :

The mucosa was similar to that of the colon but its crypts were longer (Fig. 10). The lining epithelium was a single layer of simple columnar cells with numerous goblet cells.

(2) Experimental (After 2 months of daily oral administration of Larodopa):

a) Stomach (Fundus & pylorus) :

The gastic mucosa became more thicker with widely dilated blood vessels (Figs.11&12). The gastric glands became more numerous, more tortuous with ,apparent, increase in number of the surface and lining epithelium.

b) Small intestine :

The mucosa showed folding of the villi. The covering epithelium and the enlarged goblet cells showed ,apperent, increase in number (Figs. 13&14).

c) Appendix :

The crypts were folded and became packed, with dilated vessels in between. The lining epithelium and the expanded goblet cells were ,apparently, numerous.

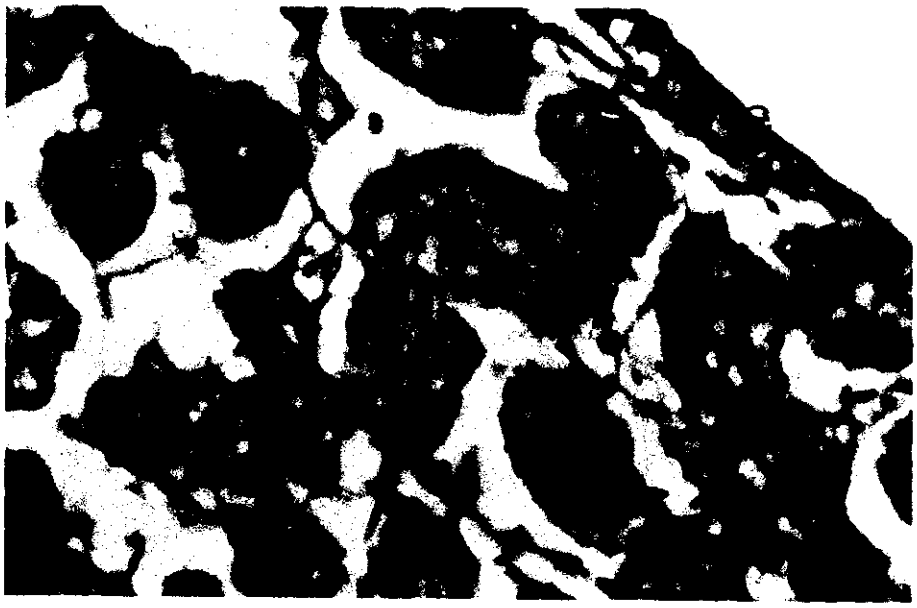

***Fig. (9)** : A photomicrograph of a section in the colon of a control rabbit showing surface epithelium (e) & crypts (R).*
(HX, E Proj : 10 Obj : 40).

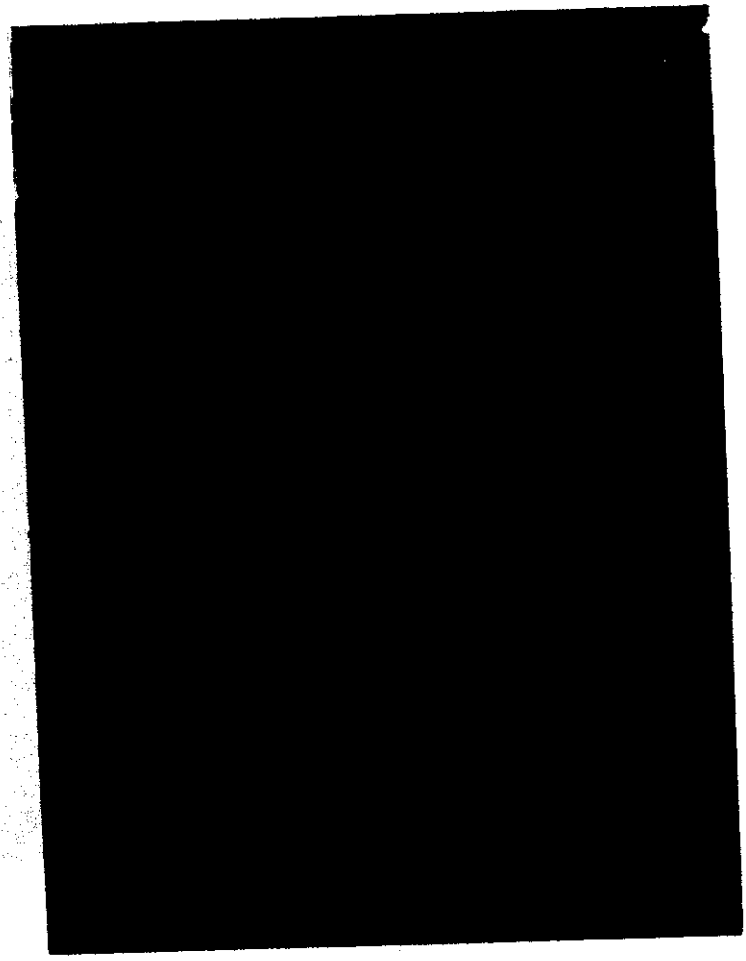

Fig. (10): *A photomicrograph of a section in the rectum of a control rabbit showing surface columnar epithelium (e) and crypts (R) (HX, E Proj : 10 Obj : 40).*

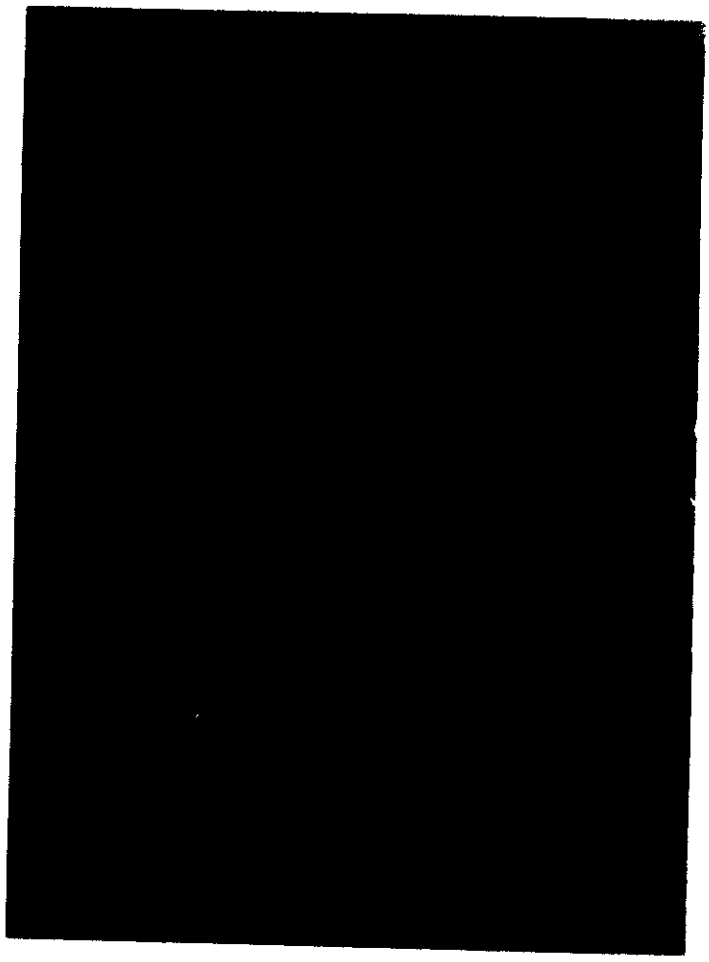

Fig. (12) : *A photomicrograph of a section in the pylorus of a rabbit after 2 months of daily oral administration of Larodopa showing that pyloric glands were more numerous and more tortuous (g), with ,apparent, increase in number of the surface and lining epithelium (e).*

(HX, E Proj : 10 Obj : 20).

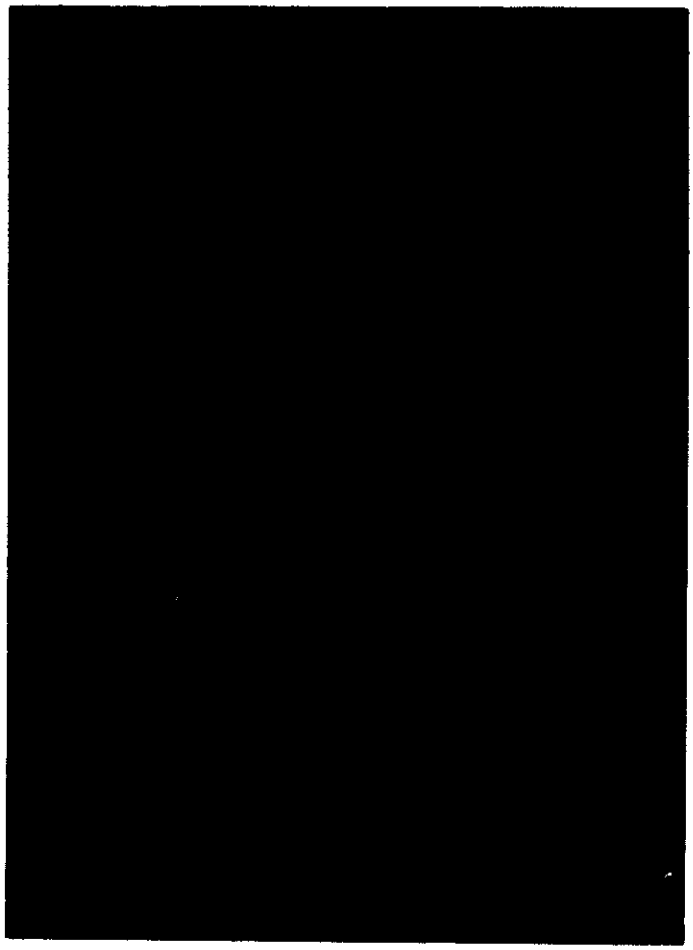

Fig. (13): *A photomicrograph of a section in the duodenum of a rabbit after 2 months of daily oral administration of Larodopa showing crowded villi (arrows) with ,apparent, increase in number of the covering epithelium(e).*

(HX, E Proj : 10 Obj : 40).

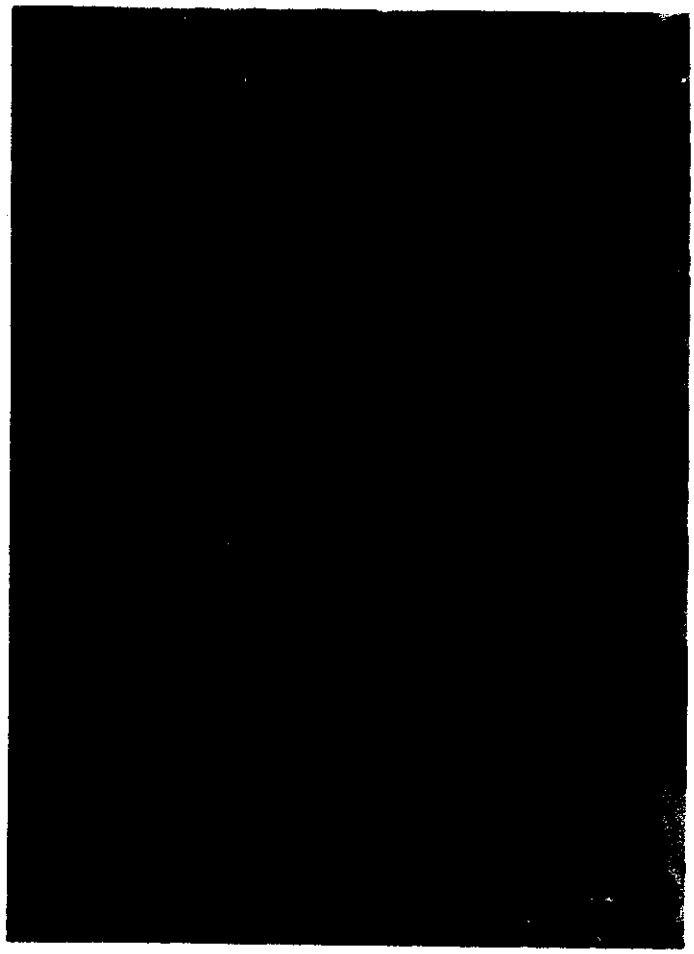

Fig. (14): *A photomicrograph of a section in the ileum of a rabbit after 2 months of daily oral administration of Larodopa showing ,apparent, increase in number of the epithelial cells (e) over the villi (arrows) and in the crypts (R).*

(HX, E Proj :10 Obj :40).

d) Colon & Rectum :

The crypts were folded and the epithelium showed expanded and ,apparently, numerous goblet cells (Fig. 15).

* Histochemical picture :

** Periodic acid-Schiff's reaction :

(1) Control :

a) Stomach :

The mucous cells in the gastric glands and some surface epithelial cells aquired a weak magenta red colour (Figs. 16 & 17).

b) Small intestine :

The goblet cells had a faint magenta red colour at the sides of the villi and in the crypts (Fig. 18).

c) Appendix:

Few goblet cells in the crypts had a weak magenta red colour (Fig.19).

d) Colon and Rectum:

Goblet cells were ,apparently, numerous in the crypts and had a weak magenta red colour (Figs. 20 & 21) at the surface epithelium and crypts.

(2) Experimental :

a) Stomach :

The surface epithelial cells and the mucous cells in the gastric glands acquired a moderate reaction as compared to the control picture (Figs. 22 & 23).

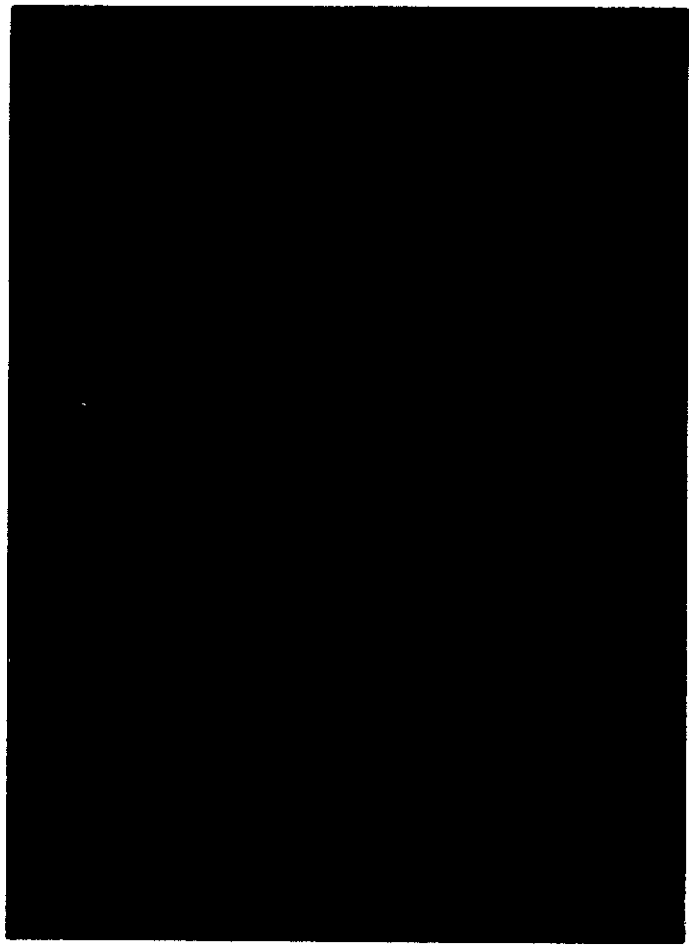

Fig. (17): *A photomicrograph of a section in the pylorus of a control rabbit showing a weak PAS reaction in the surface epithelial cells lining the foveolea of pyloric glands (e) and mucous secreting cells of pyloric glands.*

(PAs Proj : 10 Obj : 40).

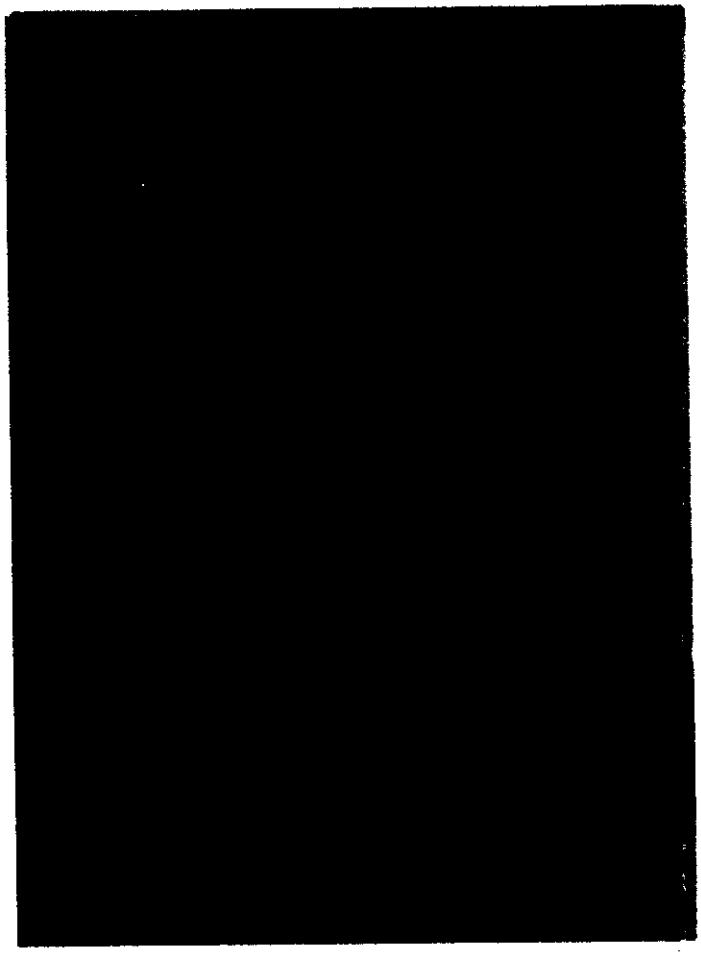

Fig. (18): *A photomicrograph of a section in the duodenum of a control rabbit showing a weak PAS reaction in the goblet cells (G) and the brush border of the surface epithelial cells (e).*
(PAS Proj : 10 Obj : 40).

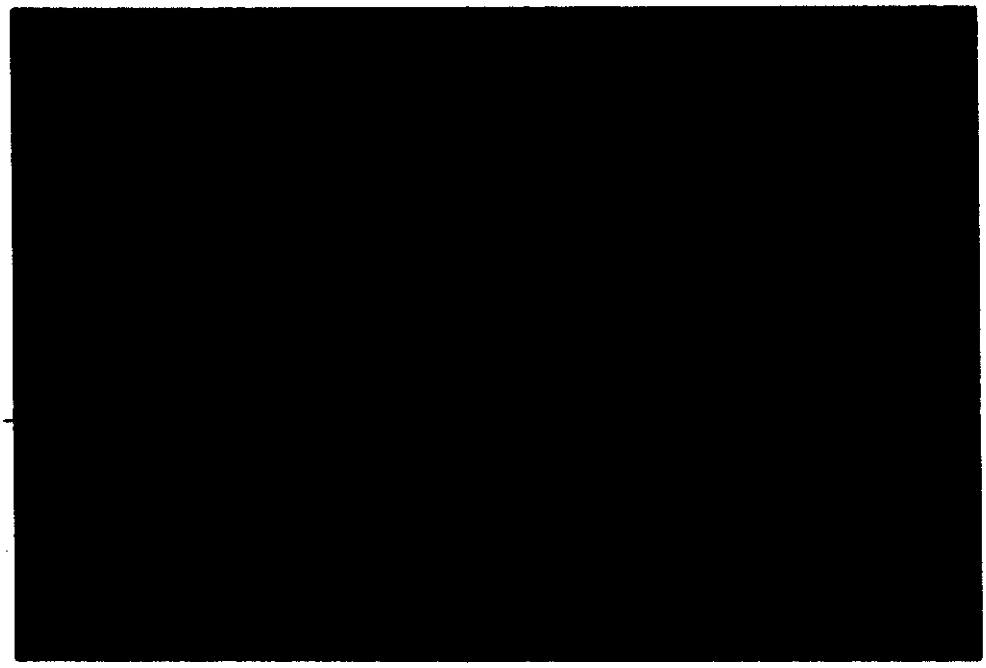

Fig. (19): *A photomicrograph of a section in the appendix of a control rabbit showing a weak PAS reaction in goblet cells (G).*
(PAS Proj : 10 Obj. 40).

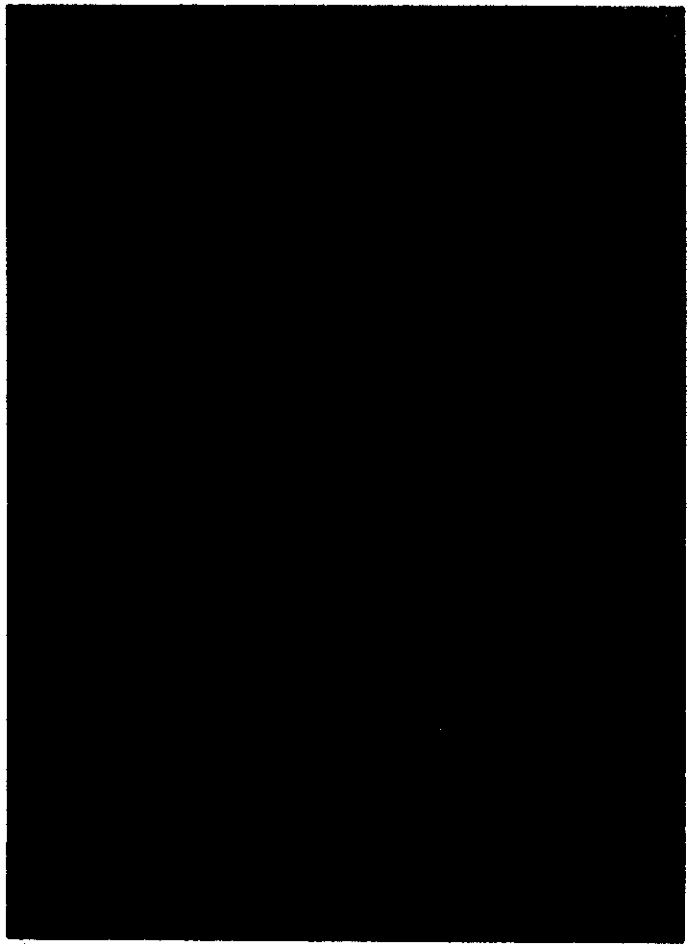

Fig. (20): *A photomicrograph of a section in the colon of a control rabbit showing a weak PAS reaction in the goblet cells (G) (PAS Proj : 10 Obj : 40).*

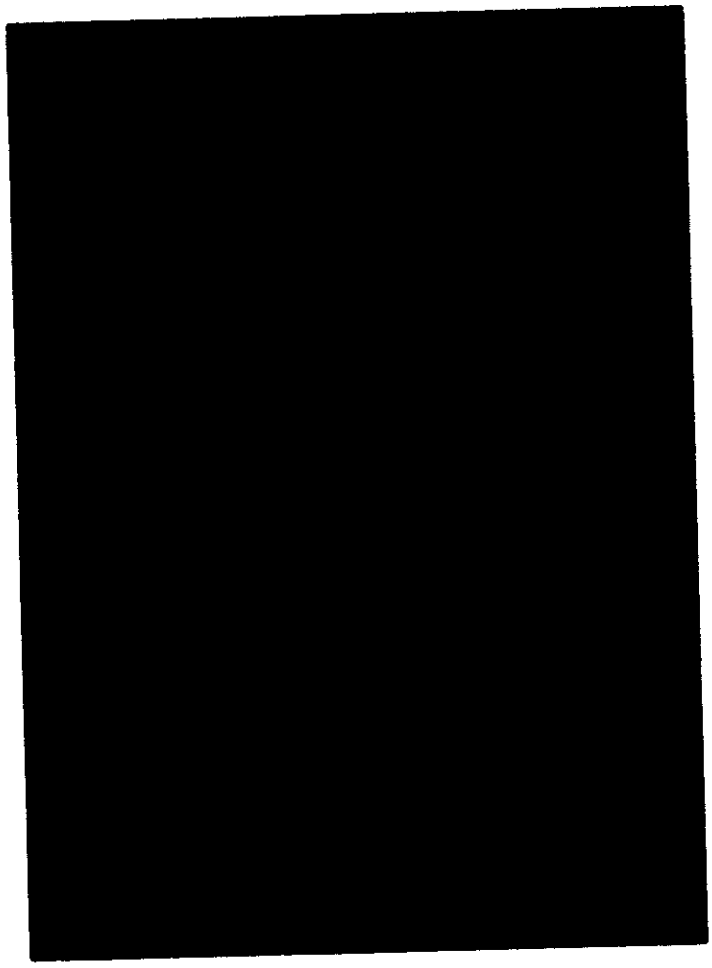

Fig. (21): *A photomicrograph of a section in the rectum of a control rabbit showing a weak PAS reaction in goblet cells (G).*
(PAS Proj : 10 Obj : 40).

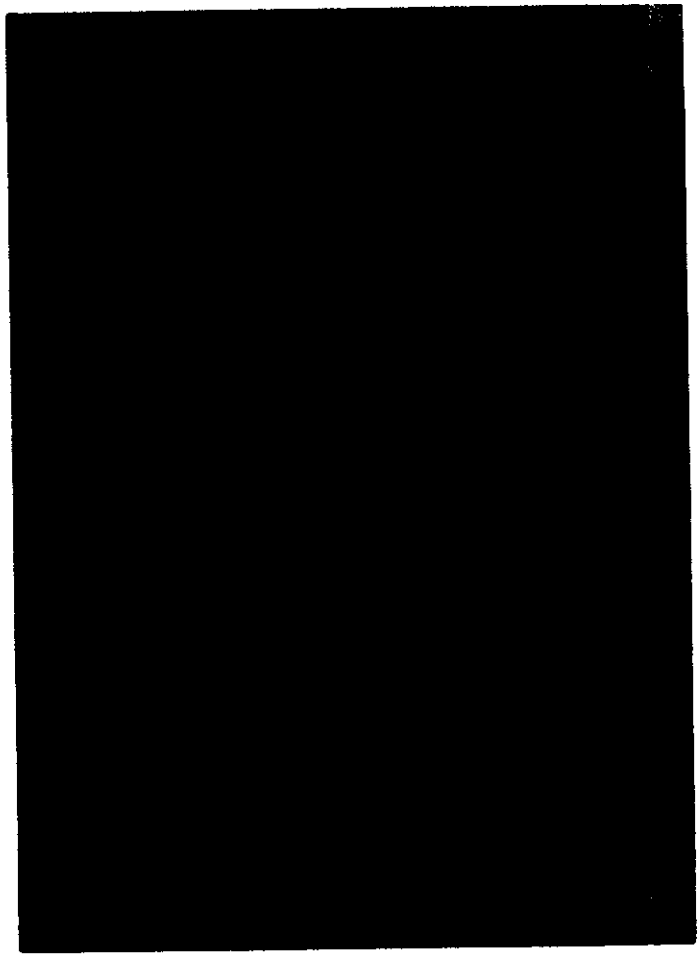

Fig. (22): *A photomicrograph of a section in the fundus of the stomach of a rabbit after 2 months of daily oral administration of Larodopa showing a moderate PAS reaction in the surface epithelial cells (g), and the mucous secreing cells of the gastric glands.*
(PAS Proj : 10 Obj : 40).

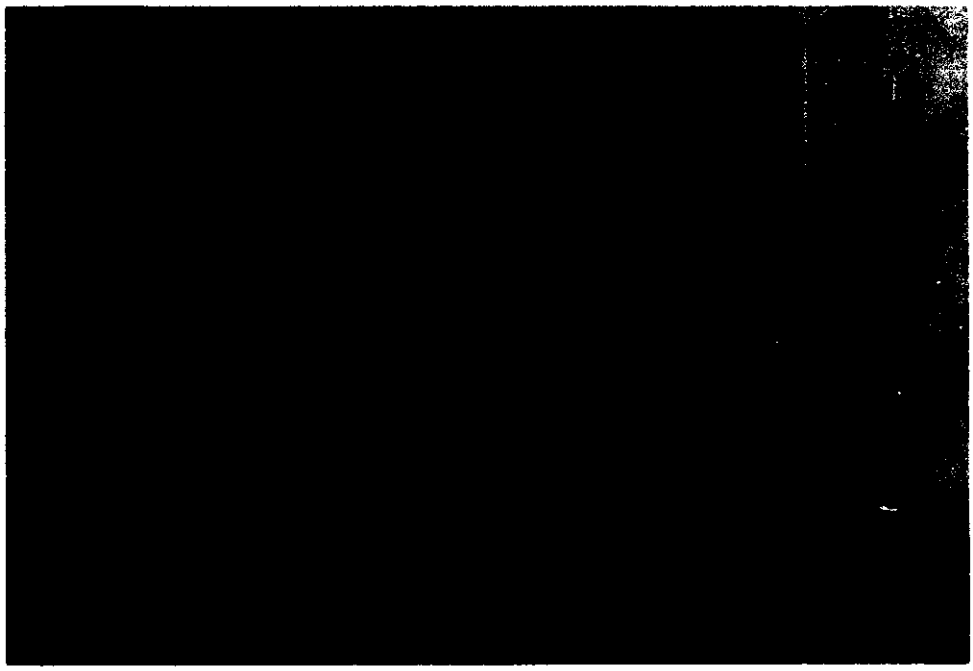

***Fig. (23)**: A photomicrograph of a section in the pylorus of a rabbit after 2 months of daily oral administration of Larodopa showing a moderate PAS reaction in the surface epithelial cells, cells lining the foveolea of glands (e) and mucous secreting cells of pyloric glands (U).*

(PAS Proj : 10 Obj :40).

b) Small intestine :

Goblet cells became ,apperently, numerous at the sides of villi and crypts, expanded with secretion and had a moderate reaction (Fig. 24).

c) Appendix :

Goblet cells became ,apperently, numerous enlarged in size and had a moderate PAS reaction as compared to the control picture (Fig.25).

d) Colon & Rectum :

Goblet cells became ,apparently, numerous and had a moderate reaction (Figs. 26 & 27).

** Pascual stain :

(1) Control :

a) Stomach :

Argyrophil cells had a weak reaction in the fundic glands & a moderate one in the pyloric glands (Figs. 28, 29 & 30). They had light brown granules and located deep in the gastric glands.

b - Small intestine :

Argyrophil cells had a weak reaction and were located at the sides of the villi (Figs. 31 & 32).

c- Appendix :

Argyrophil cells had a weak reaction and were located in the crypts (Figs. 33 & 34). They had basal yellow brown cytoplasmic granules.

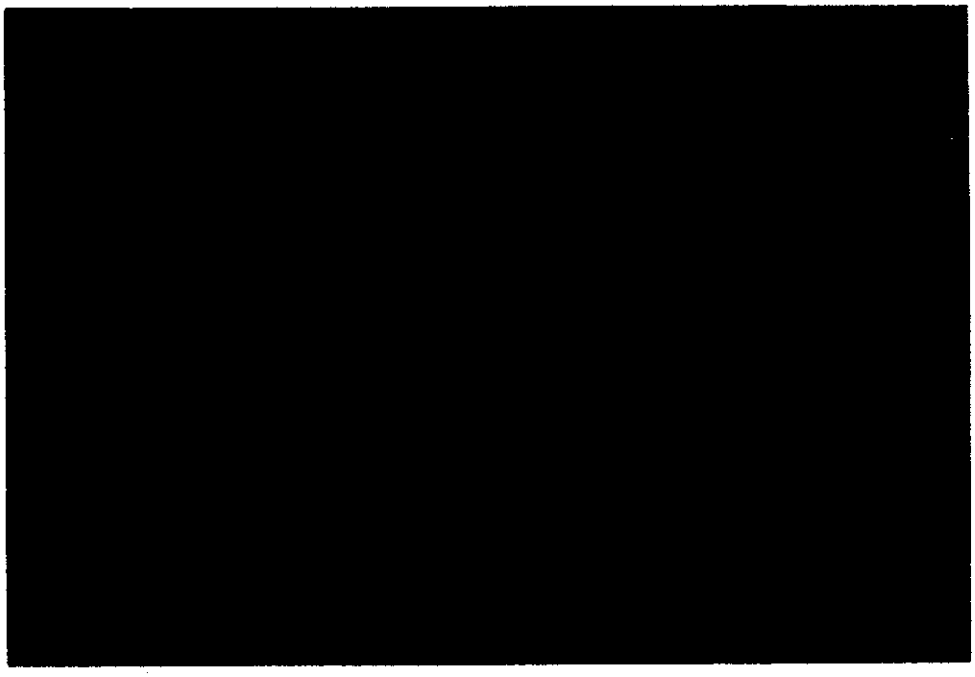

Fig. (24): *A photomicrograph of a section in the duodenum of a rabbit after 2 months of daily oral administration of Larodopa showig a moderate PAS reaction in the ,apparently, numerous larger goblet cells (G).*

(PAS Proj. : 10 Obj. : 40).

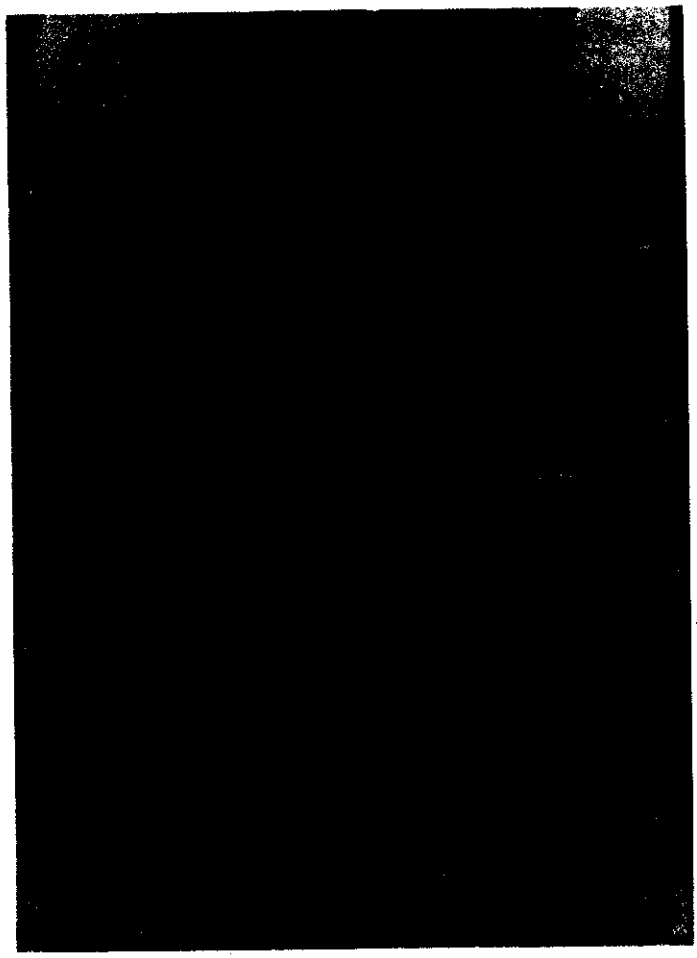

Fig. (25): *A photomicrograph of a section in the appendix of a rabbit after 2 months of daily oral administration of Larodopa showing a moderate PAS reaction in the ,apparently, numerous enlarged goblet cells (G).*

(PAS Proj : 10 Obj : 40).

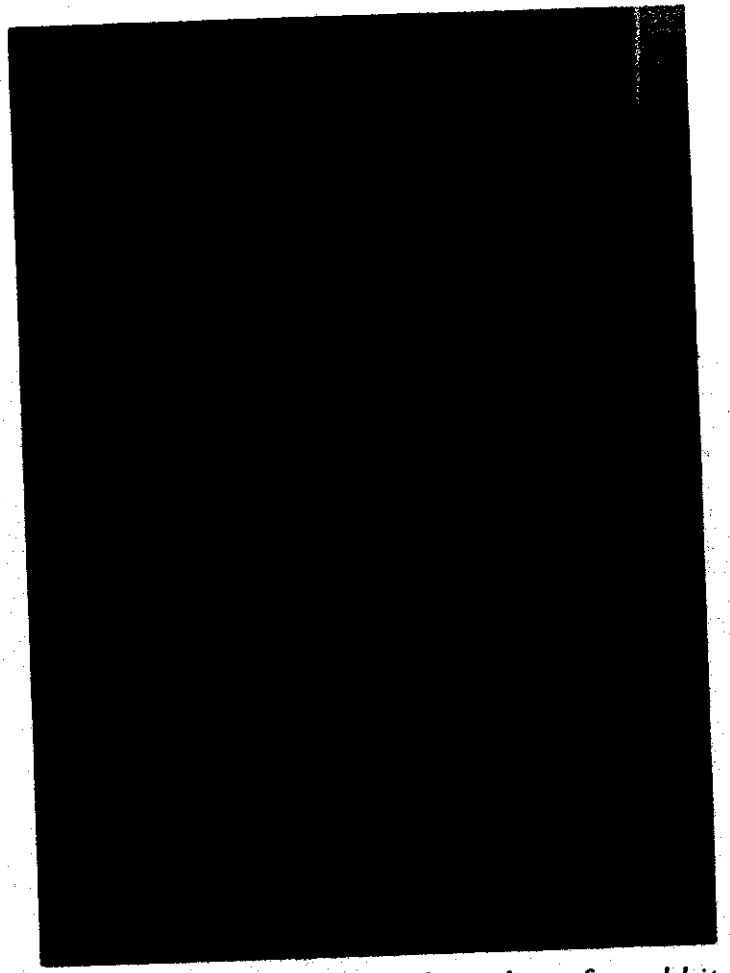

Fig. (26): *A photomicrograph of a section in the colon of a rabbit after 2 months of daily oral administration of Larodopa showing a moderate PAS reaction in the ,apparently, numerous enlarged goblet cells (G).*

(PAS Proj : 10 Obj :40).

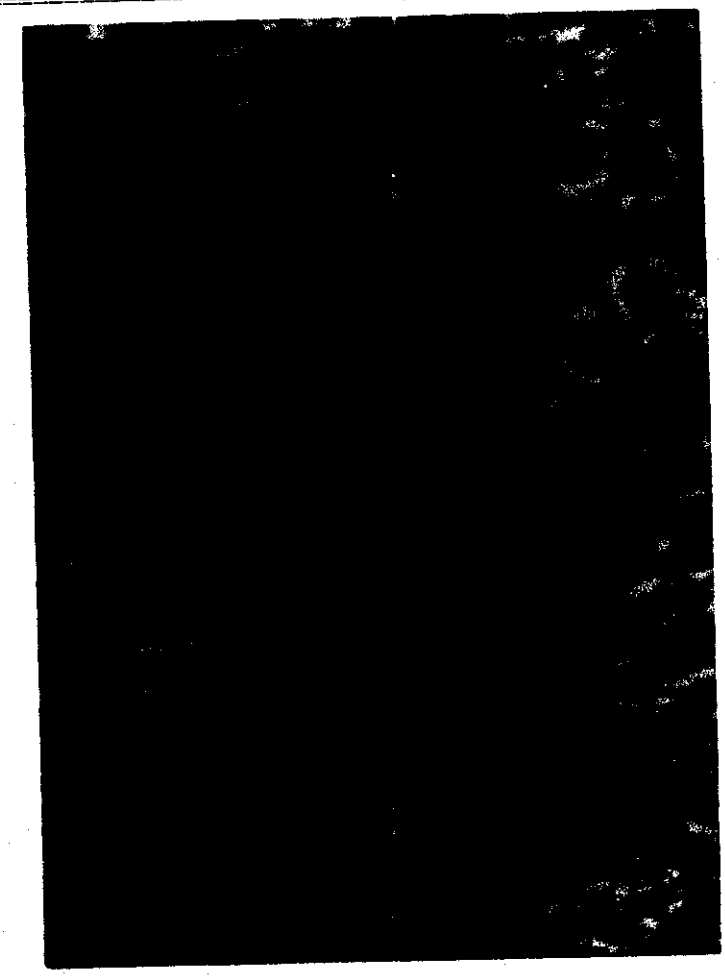

Fig. (28): *A photomicrograph of a section in the fundus of a stomach of a control rabbit showing a weak reaction in the argyrophil cells (E). (Pascual stain Proj :10 Obj:40).*

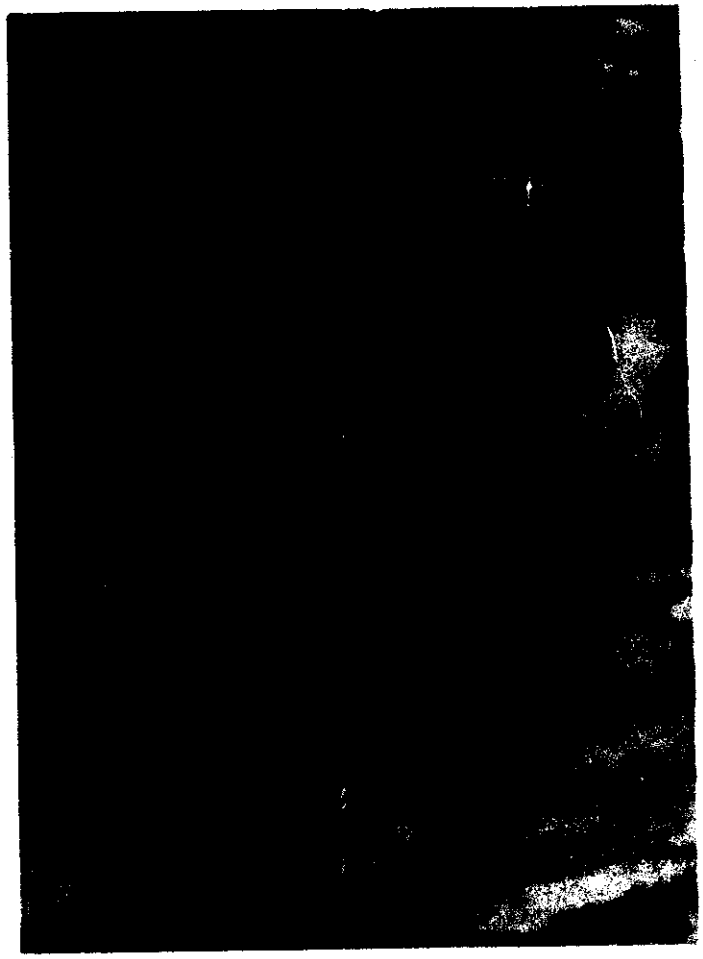

Fig. (29): *A photomicrograph of a high power magnification of the previous section showing a weak granular reaction in the shaped argyrophil cells (E). (Pascual stain Proj. : 10 Obj : 100).*

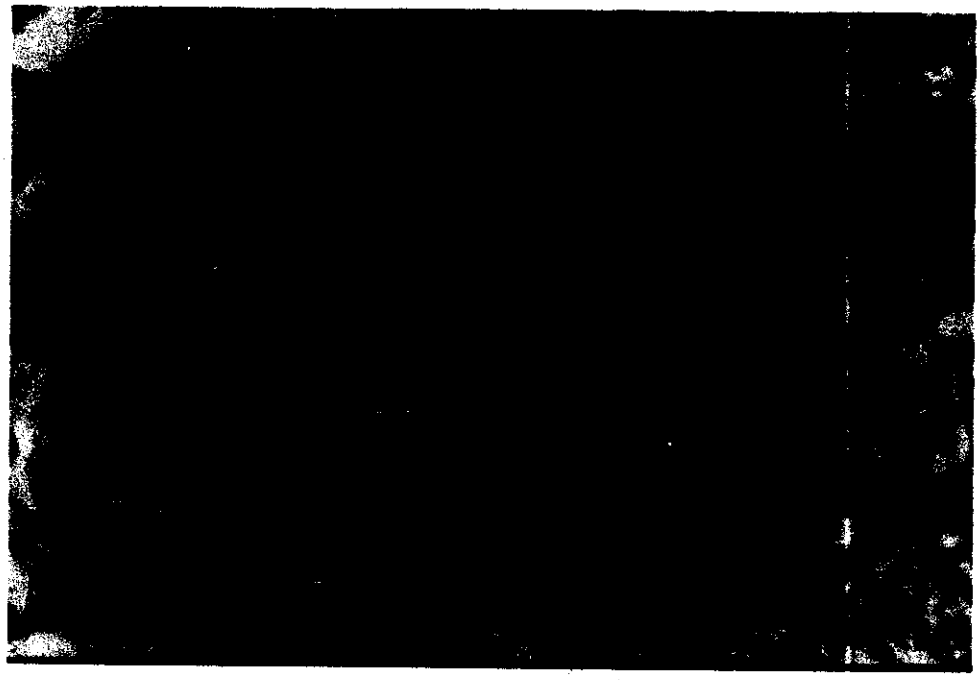

Fig. (30): *A photomicrograph of a section in the pylorus of a control rabbit showing a moderate reaction in the argyrophil cell (E). (Pascal stain Proj : 10 Obj : 40).*

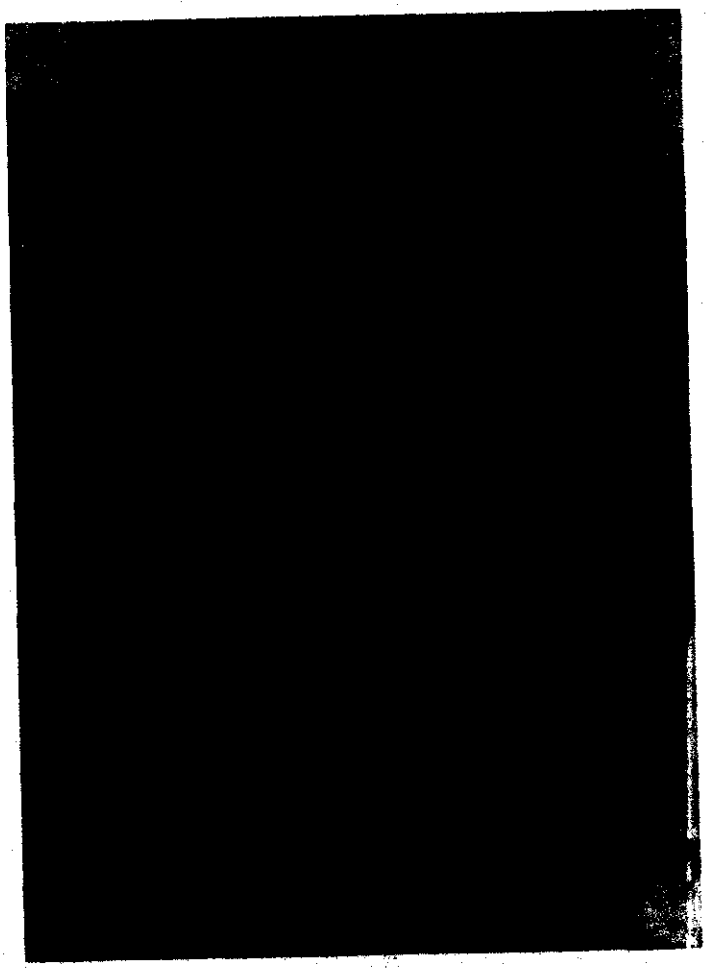

Fig. (31) *: A photomicrograph of a section in the duodenum of a control rabbit showing a weak reaction in the oval - shaped argyrophil cells (E).*

(Pascual stain Proj:10 Obj:40).

Fig. (33): *A photomicrograph of a section in the appendix of a control rabbit showing a weak reaction in an argyrophil cell (E). (Pascual stain Proj : 10 Obj : 40).*

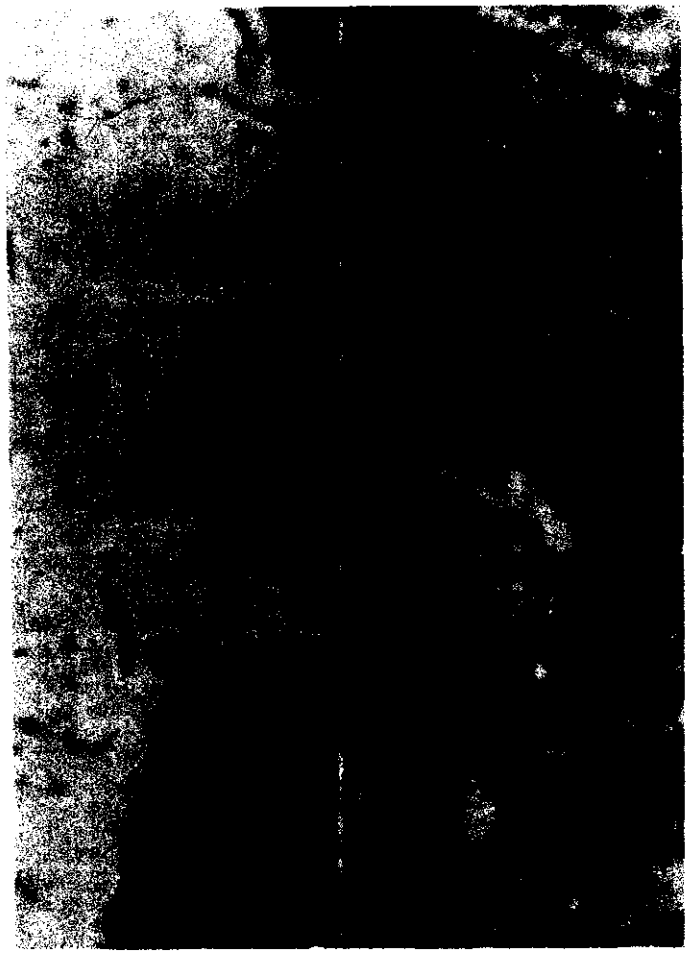

Fig. (34): *A photomicrograph of a high power magnification of the previous section showing basal brown cytoplasmic granules in the argyrophil cell (E). (Pascaul stain Proj. : 10 Obj. : 100).*

d- Colon & Rectum :

Argyrophil cells had a weak reaction and were located in the crypts of the colon (Fig. 35). In the rectum, however, they had a moderate reaction with basal brown cytoplasmic granules (Fig. 36).

(2) Experimental :

a- Stomach :

Argyrophil cells had a moderate reaction and ,apparently, incrased in number (Fig.37). They had basal brown cytoplasmic granules. Groups of 2 cells were present (Fig. 38). Some cells were stuffed with brown granules.

b- Small intestine :

Argyrophil cells had a moderate reaction, were enlarged and located at the sides of villi and crypts (Fig.39). They had basal brown cytoplasmic granules.

c- Appendix :

Argyrophil cells had a moderate reaction and located in the crypts.

d- Colon & Rectum :

Argyrophil cells had a moderate reaction and were ,apparently, increased in number (Figs. 40 & 41)

** Singh modification of Masson - Hamperl :

(1) Control:

a- Stomach: :

Enterochromaffin (EC) cells had a weak reaction. They were located, deep in the gastric glands (Figs. 42 & 43).

Fig. (35): *A Photomicrograph of a section in the colon of a control rabbit showing a weak reaction in the oval - shaped argyrophil cells (E).*

(Pascual stain Proj : 10 Obj : 40).

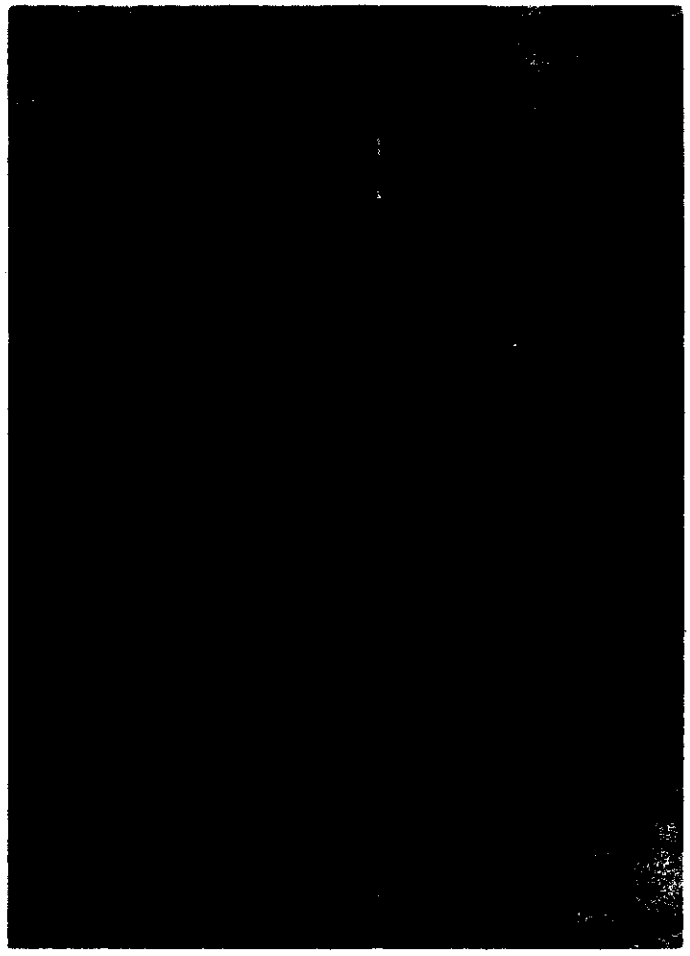

Fig. (37) *: A photomicrograph of a section in the fundus of a rabbit after 2 months of daily oral administration of larodopa showing a moderate reaction in the flask-shaped argyrophil cells. The cells were apparently numerous (E).*
(Pascual Proj: 10 Obj :40).

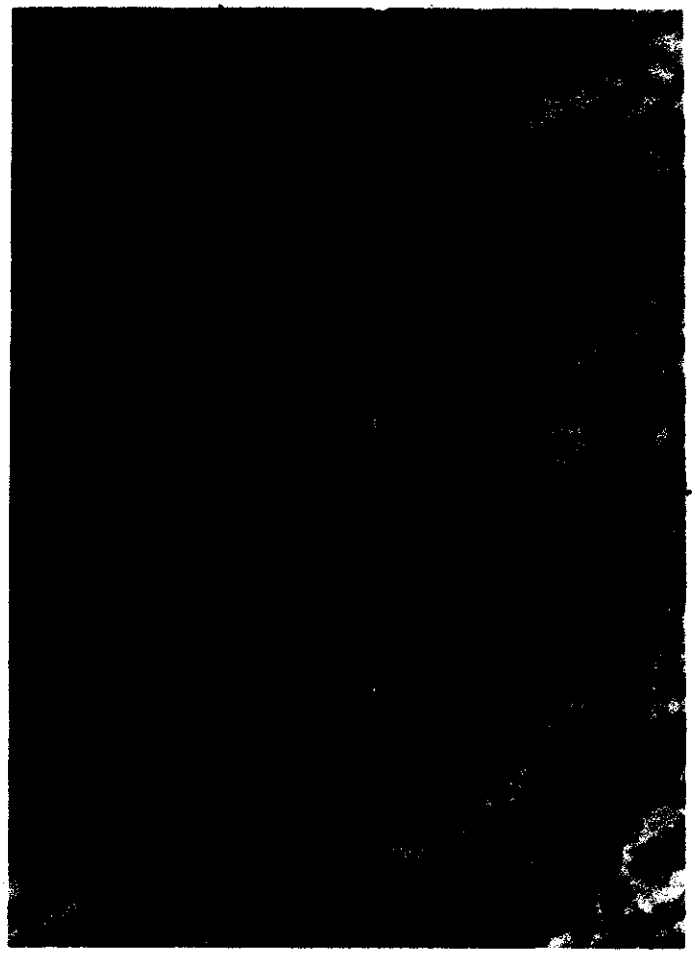

Fig.(38): *A photomicrograph of a high power magnification of the previous section showing a moderate granular reaction in the flask-shaped argyrophil cells (E). (Pascual stain Proj. : 10 Obj : 100).*

***Fig. (39)** : A photomicrograph of a section in the duodenum after 2 months of daily oral administration of larodopa showing a moderate reaction in the argyrophil cells (E). The cells were ,apparently, increased in number.*

(Pascual Proj :10 Obj:40)

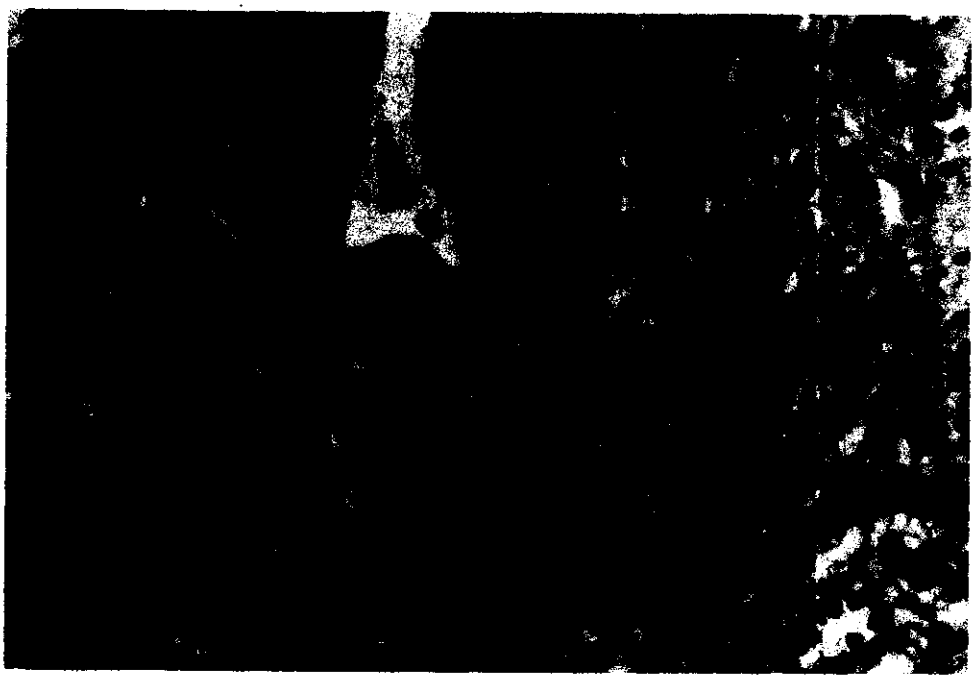

Fig. (40): *A photomicrograph of a section in the colon of a rabbit after 2 months of daily oral administration of larodopa showing a moderate reaction in the oval and rounded - shaped argyrophil cells (E). The cells were ,apparently, increased in number.*

(Pascual stain Proj : 10 Obj : 40)

Fig. (41): *A photomicrograph of a section in the rectum of a rabbit after 2 months of daily oral administration of larodopa showing a moderate reaction in the oval - shaped argyrophil cells (E) with ,apparent, increase their in number.*

(Pascual's Proj : 10 Obj : 40).

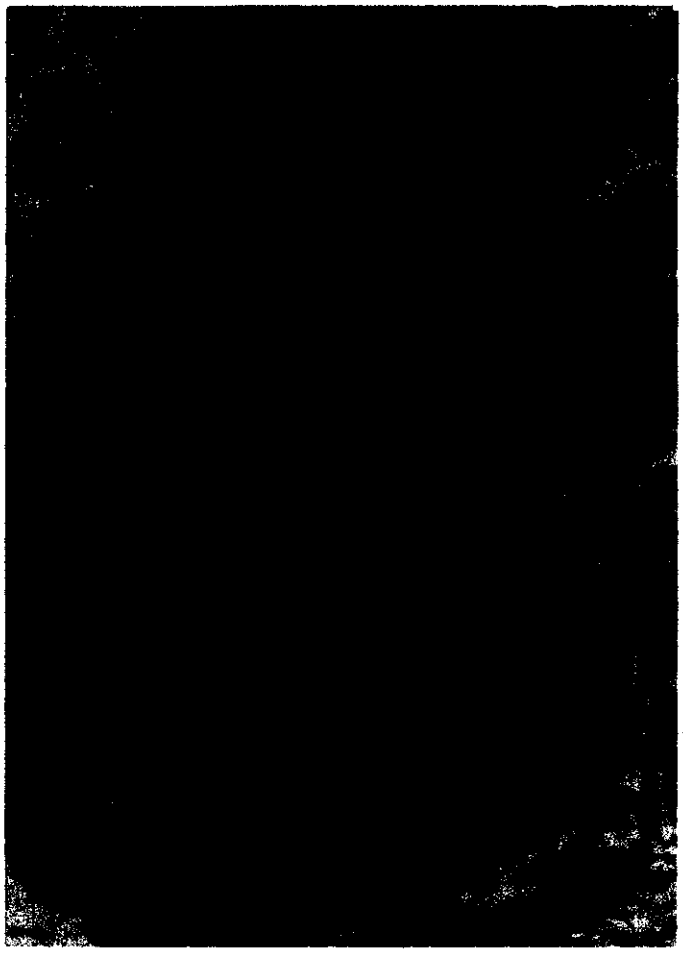

Fig. (42): *A photomicrograph of a section in the stomach fundus of a control rabbit showing a weak reaction in the rounded and oval - shaped enterochromaffin cells (E).*
(Singh modification of Masson-Hamperl Proj : 10 Obj : 40).

Fig. (43): *A photomicrograph of a section in the pylorus of a control rabbit showing a weak reaction in the oval-shaped enterochromaffin cells (E).*
(Singh modification of Masson-Hamperl Proj :10 Obj : 40).

Fig. (45): *A photomicrograph of a section in the ileum of a control rabbit showing a weak reaction in the enterochromaffin cells (E). (Singh modification of Masson - Hampert Proj. : 10 Obj. : 40).*

Fig. (46): *A photomicrograph of a high power magnification of the previous section showing a weak basal granular reaction in the oval - shaped enterochromaffin cells (E). (Singh modification of Masson - Hamperl Proj : 10 Obj. :100).*

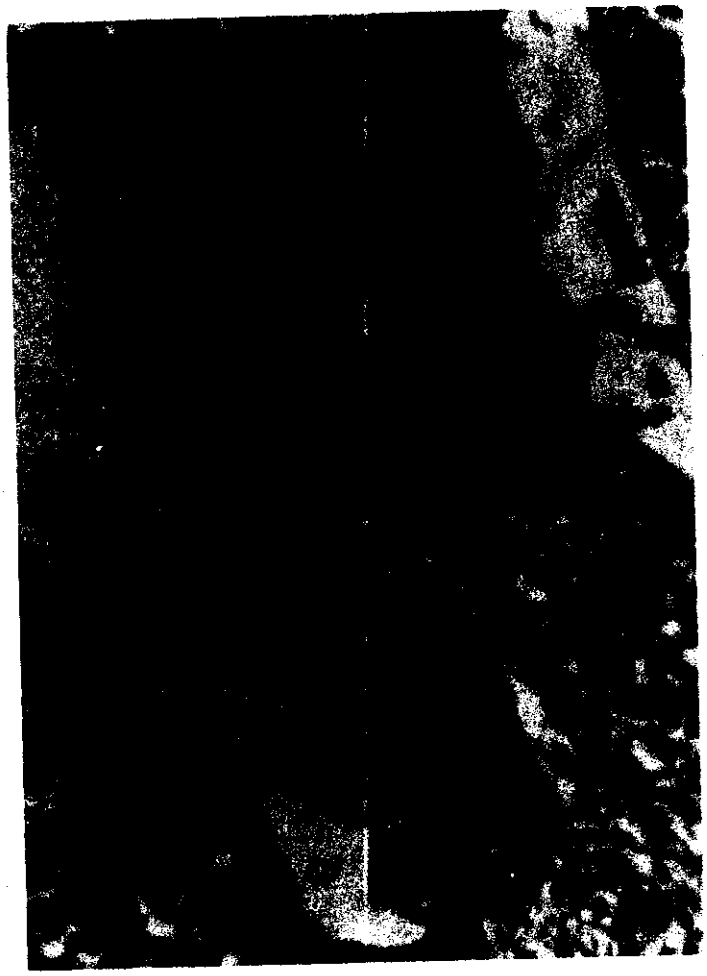

Fig. (47): *A photomicrograph of a section in the appendix of a control rabbit showing a weak reaction in the enterochromaffin cells (E). (Singh modification of Masson-Hamperl Proj : 10 Obj : 40).*

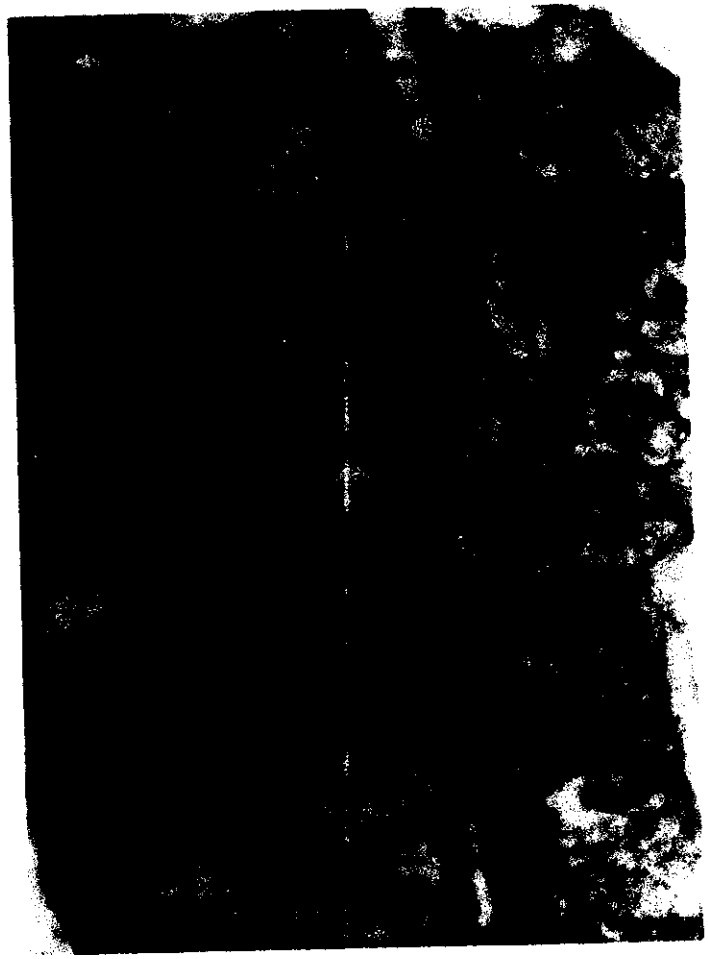

Fig. (48): *A photomicrograph of a high power magnification of the previous section showing a weak reaction in the basally entero-chromaffin cells (E).The granules were located basally (Singh modification of Masson-Hamperl Proj. : 10 Obj. : 100).*

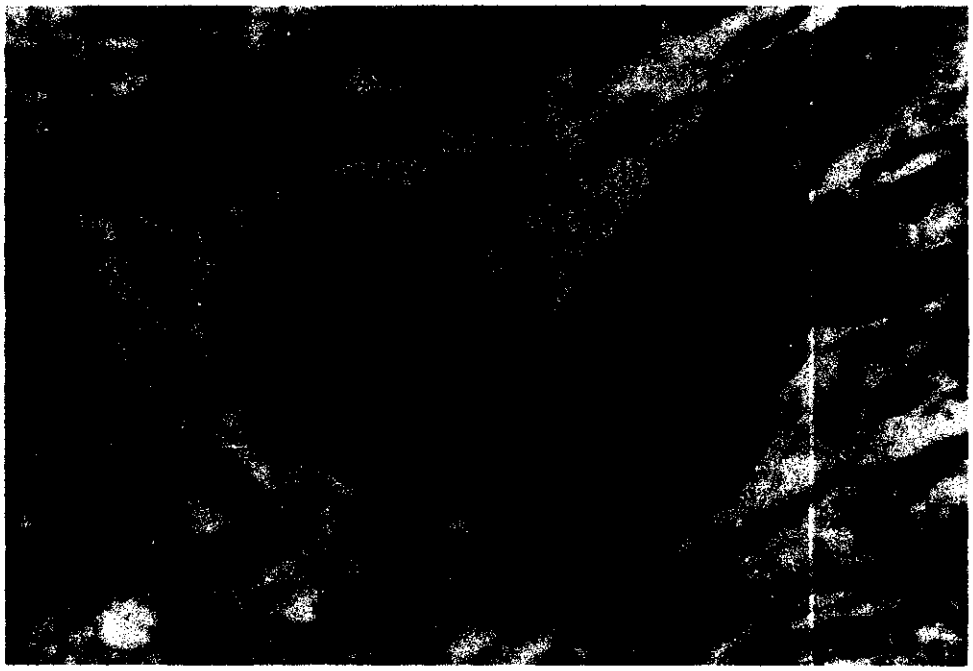

Fig. (49): *A photomicrograph of a section in the colon of a control rabbit showing a weak reaction in the oval - shaped enterochromaffin cells (E).*
(Singh modification of Masson-Hamperl Proj : 10 Obj : 40).

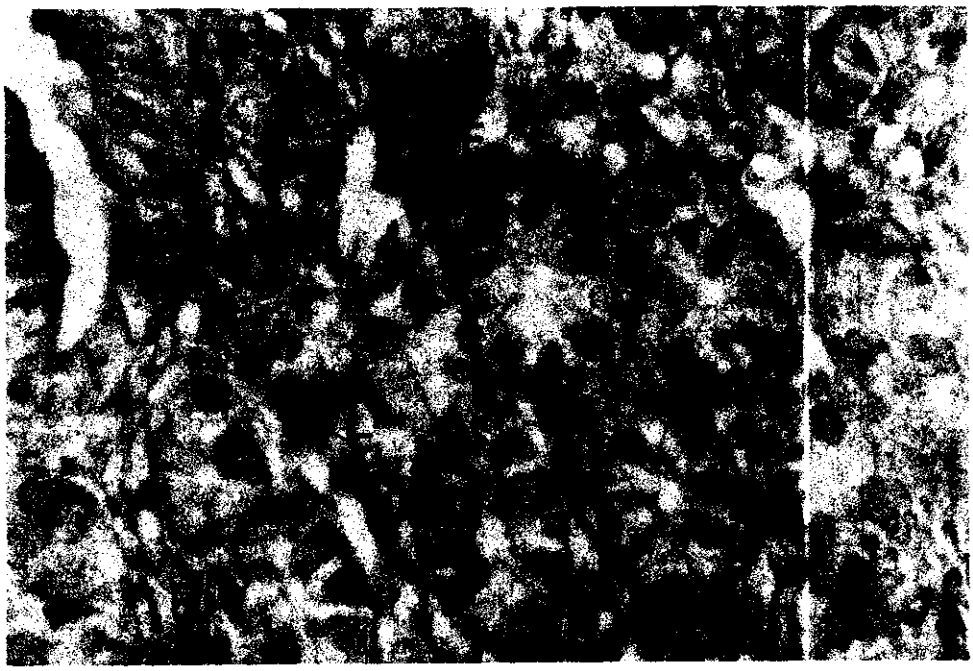

Fig. (50): *A photomicrograph of a section in the rectum of a control rabbit showing a weak reaction in the enterochromaffin cells (E).*
(Singh modification of Masson-Hamperl Proj. : 10 Obj :40).

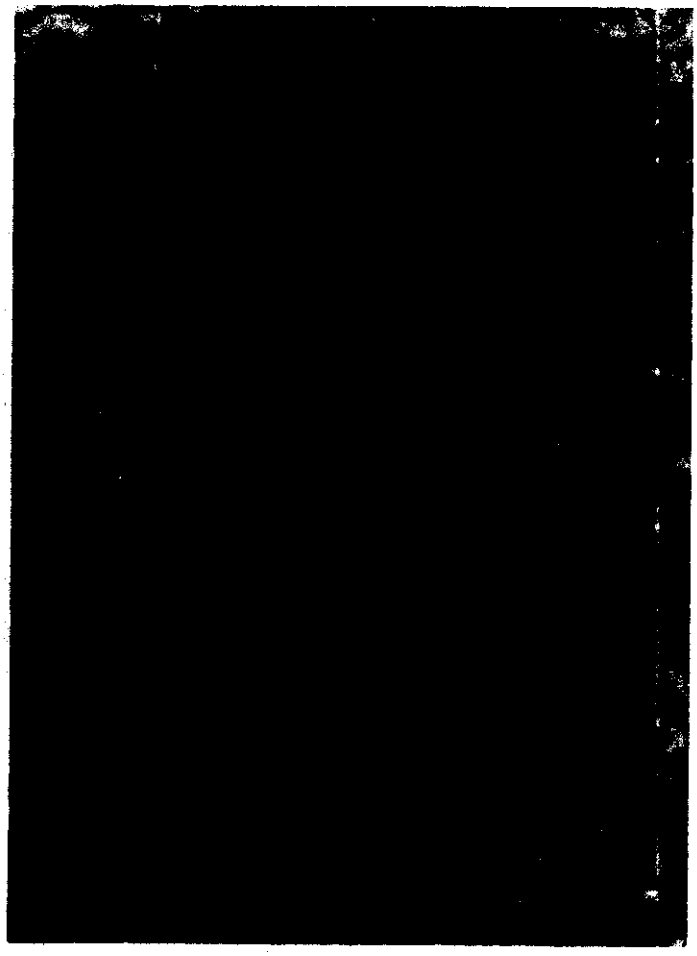

Fig. (51): *A photomicrograph of a section in the fundus of a rabbit after 2 months of daily oral administration of larodopa showing a moderate reaction in the oval and rounded-shaped enterochromaffin cells (E). The cells were enlarged and ,apparently, increased in number with groups of 2 - 3 cells (arrows).*
(Singh modification of Masson-Hamperl Proj : 10 Obj : 40).

Fig. (53): *A photomicrograph of a section in the appendix of a rabbit after 2 months of daily oral administration of larodopa showing a moderate to a strong reaction in the enterochromaffin cells. The cells were ,apparently, increased in number (Singh modification of Masson-Hamperl Proj : 10 Obj : 40)*

Fig. (54): *A photomicrograph of a high power magnification of the previous section showing a moderate to a strong reaction in the large flask-shaped enterochromaffin cells (E). (Singh modification of Masson-Hamperl Proj:10 Obj. 100).*

d - Colon & Rectum :

Enterochromaffin (EC) cells had a moderate reaction, enlarged and ,apparently, increased in number. They had basal brown cytoplasmic granules. Groups of 2-3 cells were present (Fig. 55).

** Alkaline diazo :

(1) Control :

a- Stomach :

Serotonin producing cells had a weak reaction. They were located deep in the gastric glands (Figs 56 & 57) and had orange red cytoplasmic granules.

b- Small intestine :

Serotonin producing cells had a weak reaction. They were located near the base of the villi and had organe red granules (Figs. 58 & 59).

c- Appendix :

Serotonin producing cells had basal orange red cytoplasmic granules (Figs.60 & 61).

d- Colon & Rectum :

Serotonin producing cells had a weak reaction. They were located in the crypts and had orange red granules (Figs. 62 & 63).

(2) Experimental

a- Stomach :

Serotonin producing cells had a moderate reaction. They were enlarged and ,apparently, increased in number. Groups of 2 cells were present (Figs. 64 & 65).

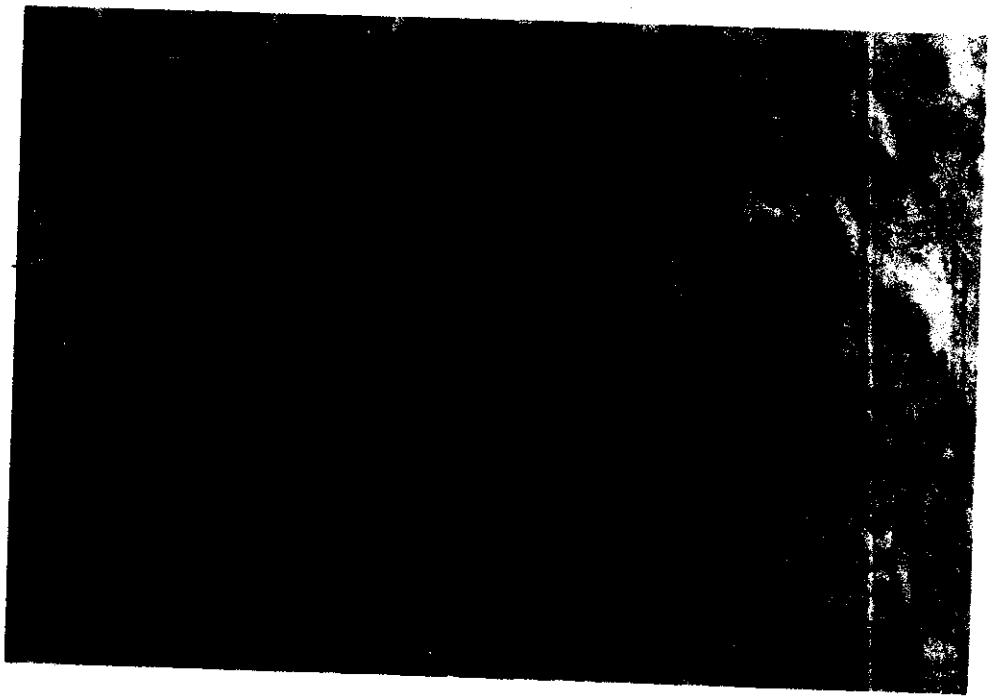

Fig. (56): *A photomicrograph of a section in the fundus of a stomach of a control rabbit showing a weak reaction in the serotonin producing cells (E).*
(Alkaline diazo Proj : 10 Obj : 40).

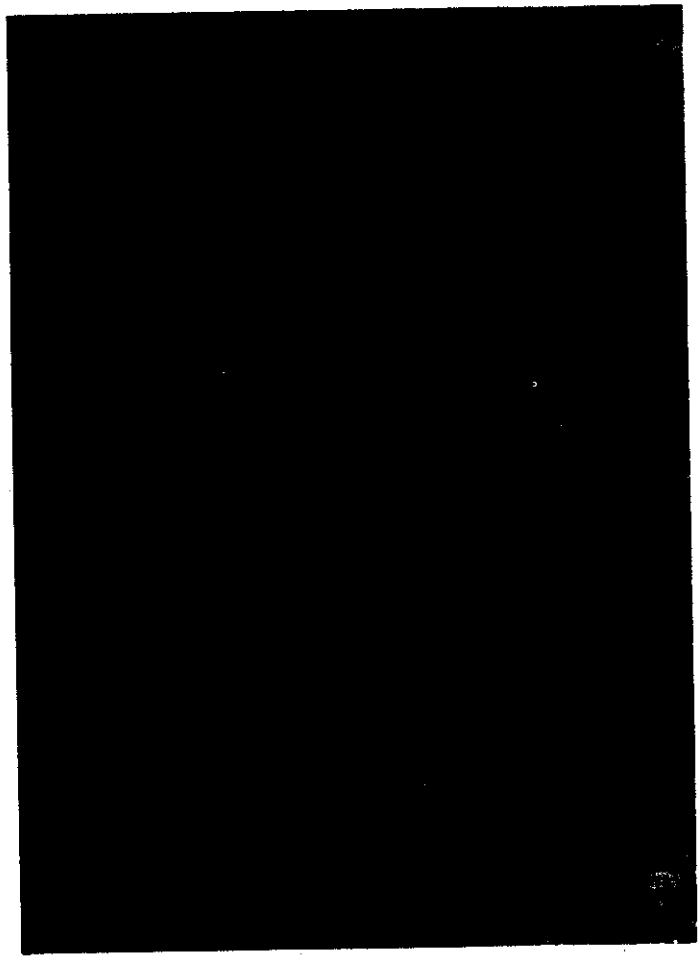

Fig. (57) : *A photomicrograph of a high power magnification of the previous section showing a weak reaction in the serotonin producing cells (E).*
(Alkaline diazo Proj. : 10 Obj. : 100).

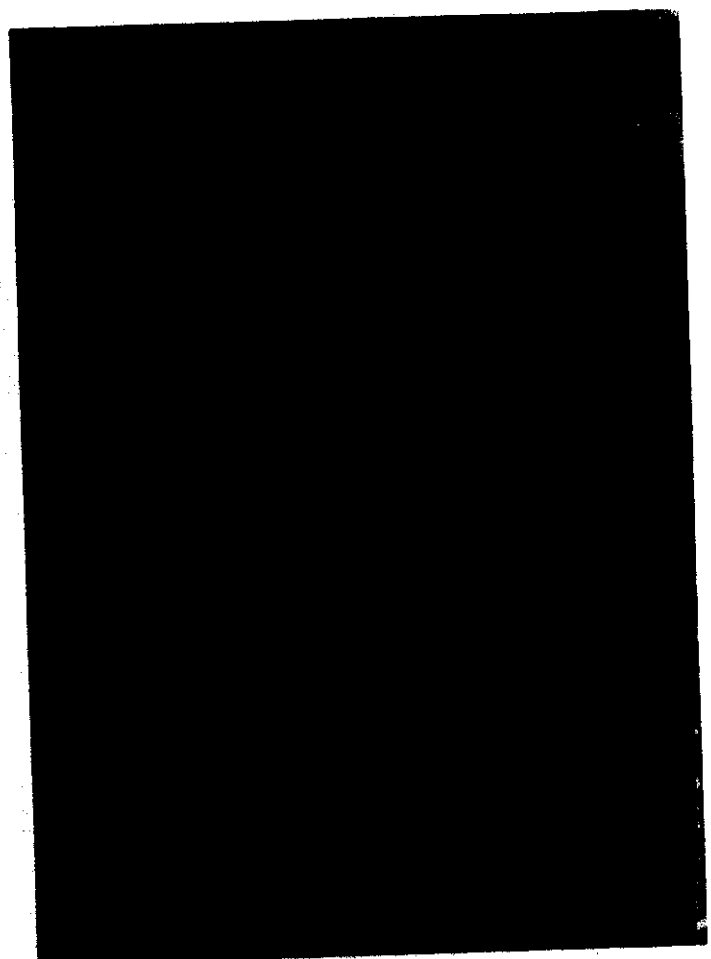

Fig. (58): *A photomicrograph of a section in the duodenum of a control rabbit showing a weak reaction in the flask-shaped serotonin producing cells (E). (Alkaline diazo Proj : 10 Obj : 40).*

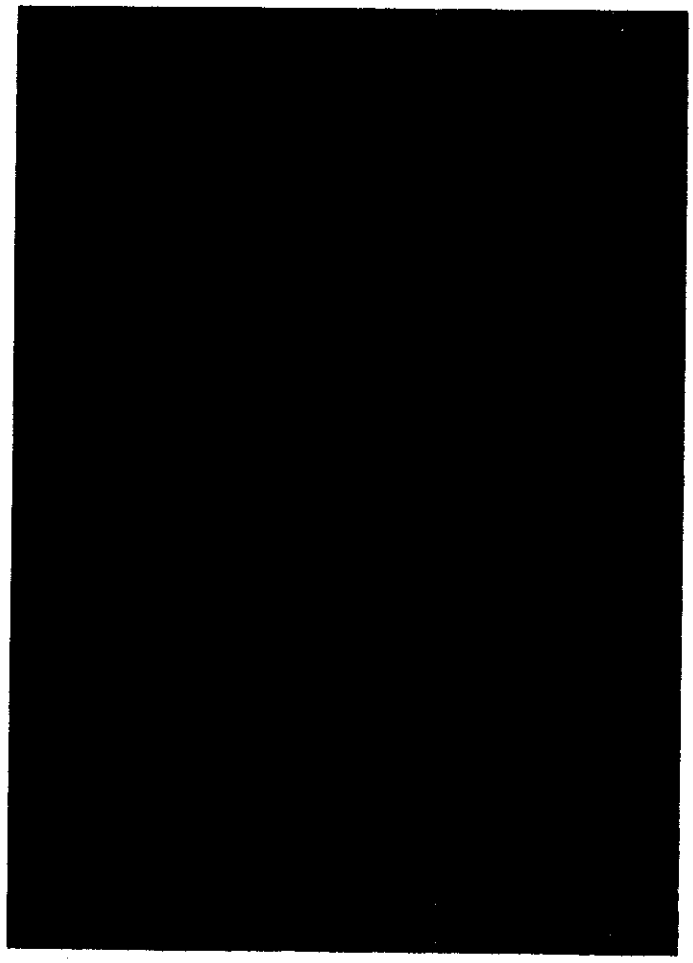

Fig. (60): *A photomicrograph of a section in the appendix of a control rabbit showing a weak reaction in the serotonin producing cells (E). (Alkaline diazo Proj : 10 Obj : 40).*

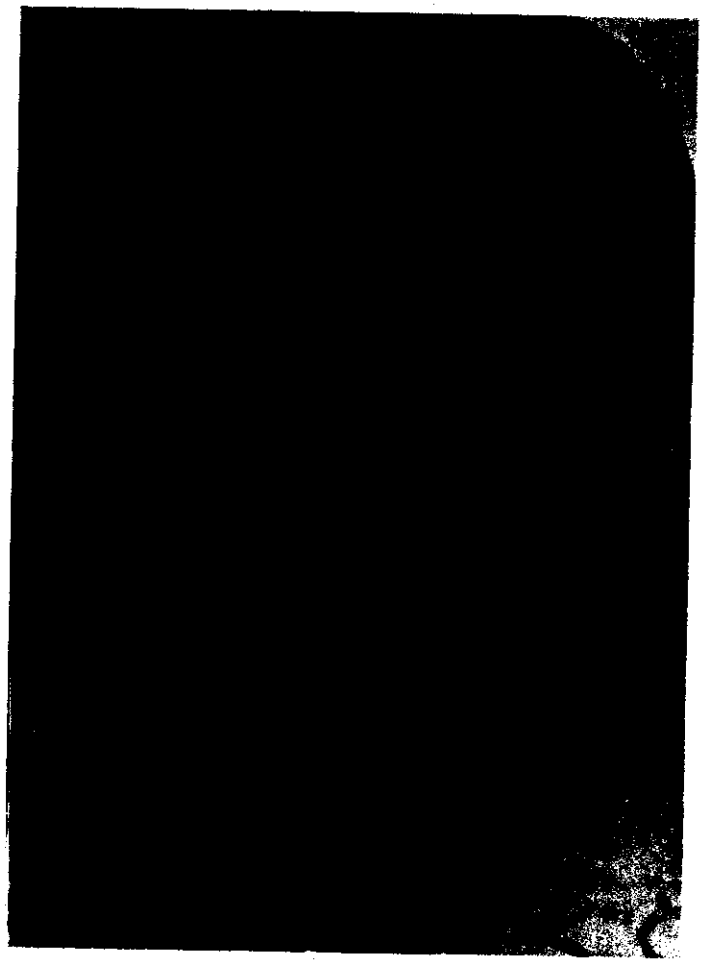

Fig. (61): *A photomicrograph of a high power magnification of the previous section showing a weak granular reaction in the oval - shaped serotonin producing cell (E). Alkaline diazo Proj. : 10 Obj. : 100).*

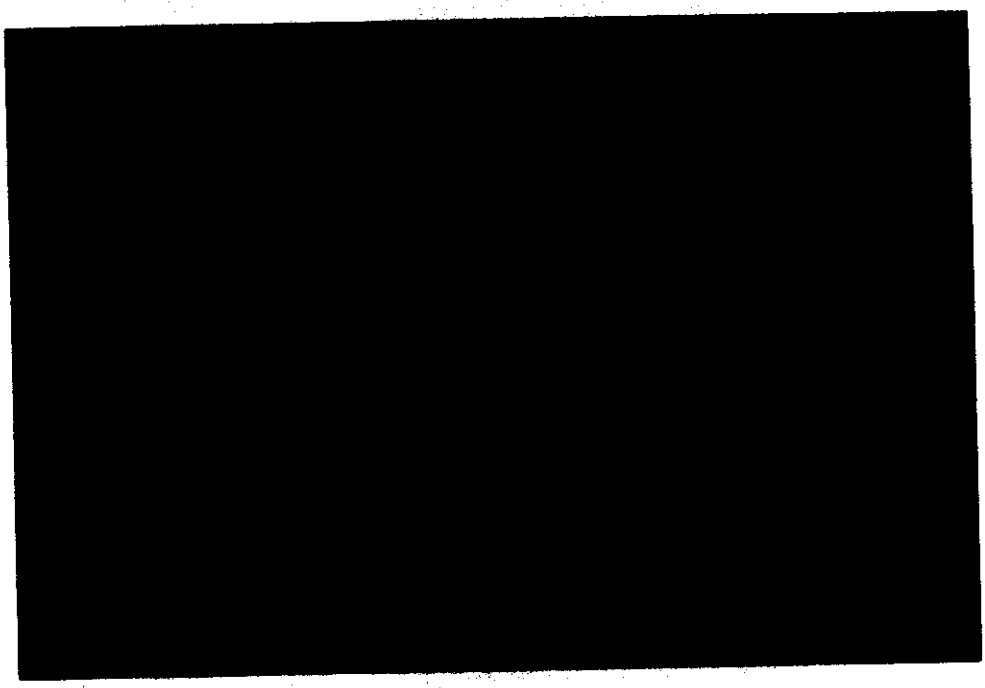

Fig. (62): *A photomicrograph of a section in the colon of a control rabbit showing a weak reaction in the oval-shaped serotonin producing cells (E).*
(Alkaline diazo Proj : 10 Obj : 40).

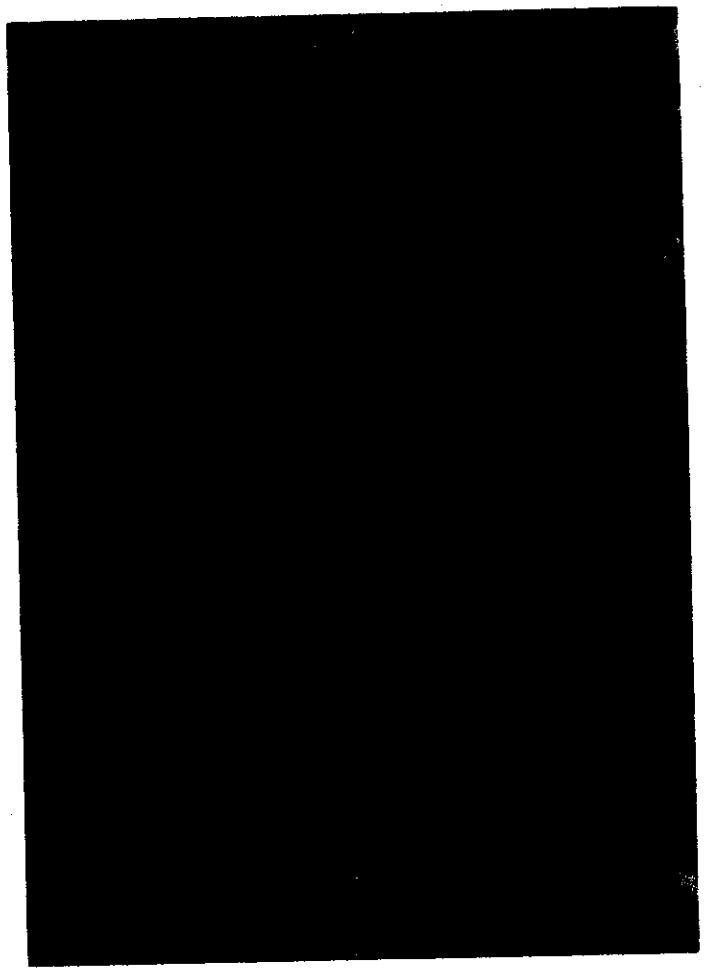

Fig.(64): *A photomicrograph of a section in the stomach fundus of a rabbit after 2 months of daily oral administration of Larodopa showing a moderate reaction in the serotonin producing cells (E).The cells were enlarged and ,apparently, increased in number with groups of 2 cells (arrows). (Alkaline diazo Proj : 10 Obj : 40).*

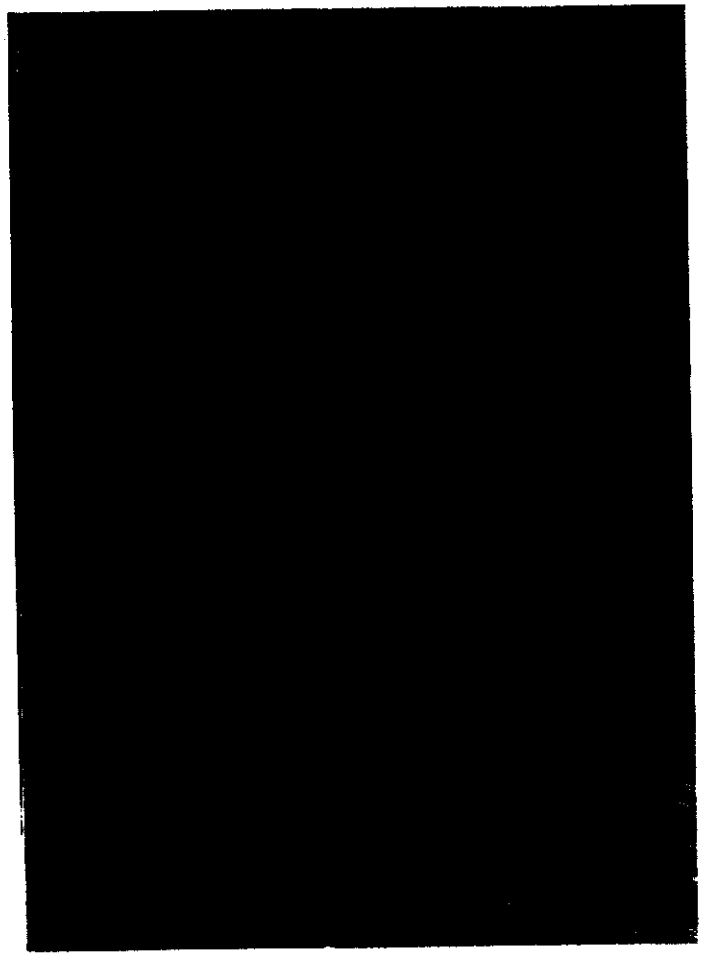

Fig. (65): *A photomicrograph of a high power magnification of the previous section showing a moderate granular reaction in the large triangular and flask-shaped serotonin prod-ucing cells (E). (Alkaline diazo Proj : 10 Obj. : 100).*

b- Small intestine:

Serotonin producing cells had a weak to a moderate reaction, enlarged and ,apparently, numerous (Fig. 66).

c- Appendix :

Serotonin producing cells had a moderate reaction. They were enlarged and ,apparently, numerous (Fig. 67 & 68).

d- Colon & Rectum :

Serotonin producing cells had a moderate reaction, were enlarged and apparently increased in number with basal orange red cytoplasmic granules (Figs. 69 & 70).

**** Modified chromaffin reaction :**

(1) Control :

a- Stomach :

Adrenaline and noradrenalin producing cells had a weak reaction. They were located deep, in the gastric glands (Figs. 71 & 72). They had pale basal brown granules.

b - Small intestine :

Adrenalin and noradrenalin producing cells had a weak reaction and were located in the crypts (Fig.73).

c- Appendix :

Adrenalin and noradrenalin producing cells had a weak reaction and located in the crypts (Fig.74).

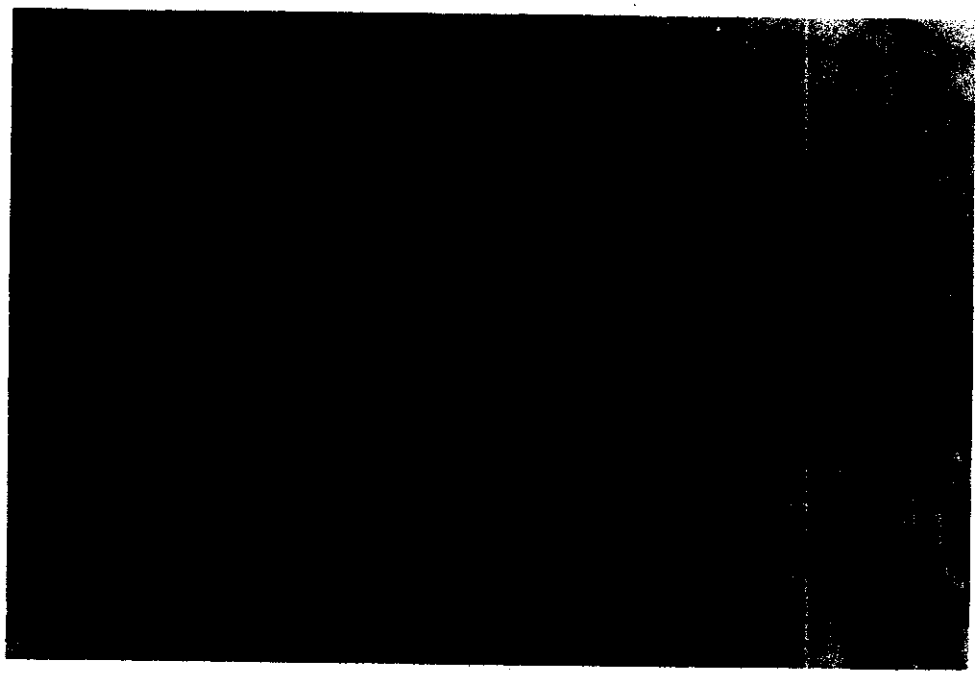

Fig. (66): *A photomicrograph of a section in the jejunum of a rabbit after 2 months of daily oral administration of Larodopa showing a weak to a moderate reaction in the oval serotonin producing cells (E). The cells were enlarged and ,apparently, numerous. (Alkaline diazo Proj : 10 Obj : 40).*

Fig. (67): *A photomicrograph of a section in the appendix of a rabbit after 2 months of daily oral administration of Larodopa showing a moderate reaction in the serotonin producing cells (E). The cells were enlarged and ,apparently, increased in number.*

(Alkaline diazo Proj : 10 Obj : 40).

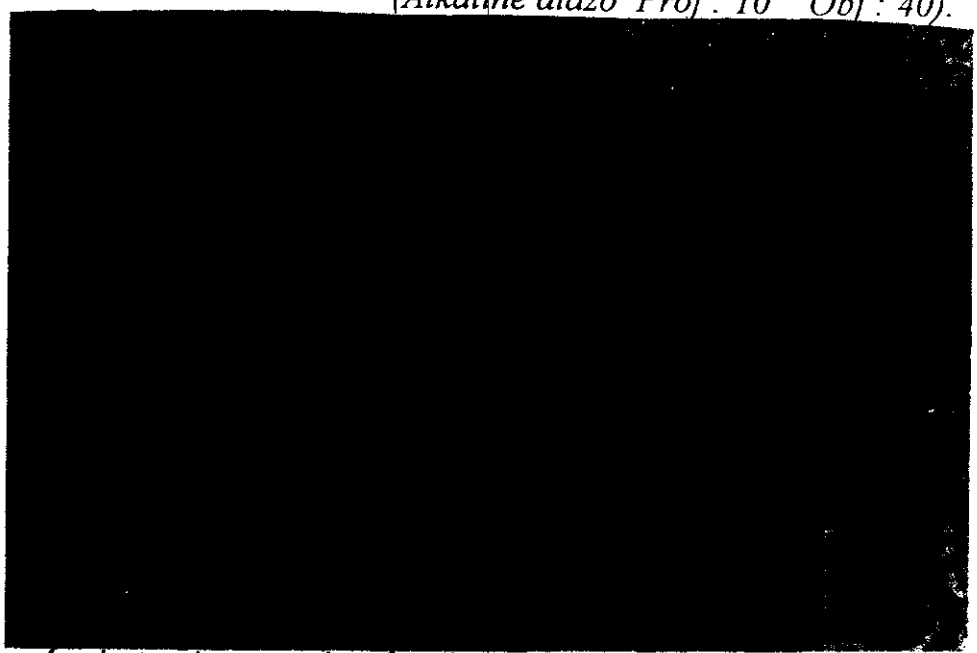

Fig. (68): *A photomicrograph of a high power magnificantion of the previous section showing a moderate basal granular reaction in the oval and rounded - shaped serotonin producing cells (E).*

(Alkaline diazo Proj : 10 Obj. 100).

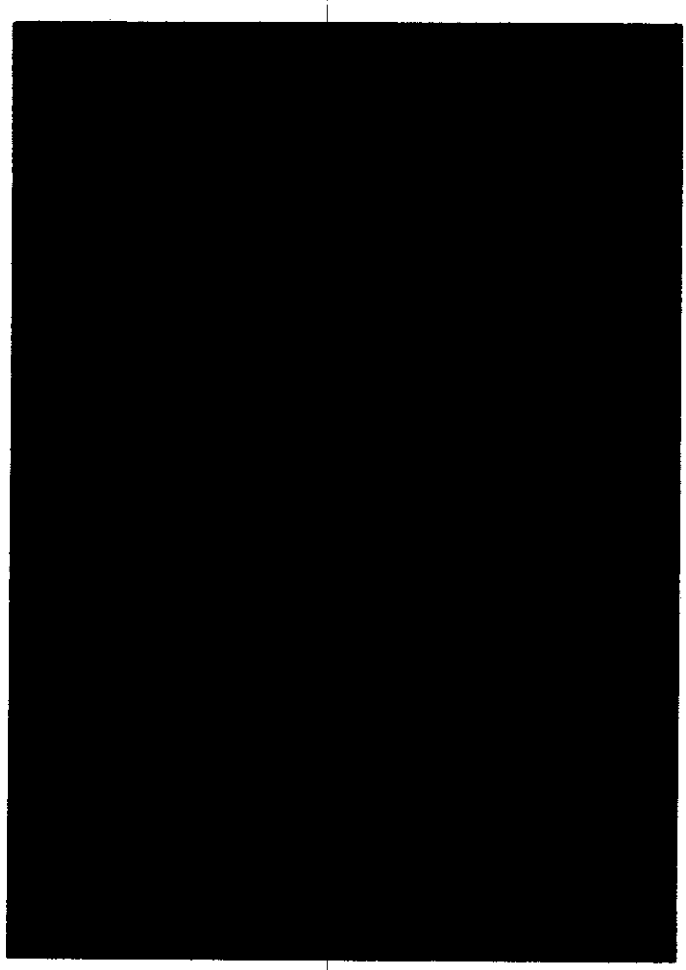

Fig. (69): *A photomicrograph of a section in the colon of a rabbit after 2 months of daily oral administration of larodopa showing a moderate reaction in the rounded - shaped serotonin producing cells (E). The cells were enlarged and ,apparently, increased in number.*

(Alkaline diazo Proj : 10 Obj : 40).

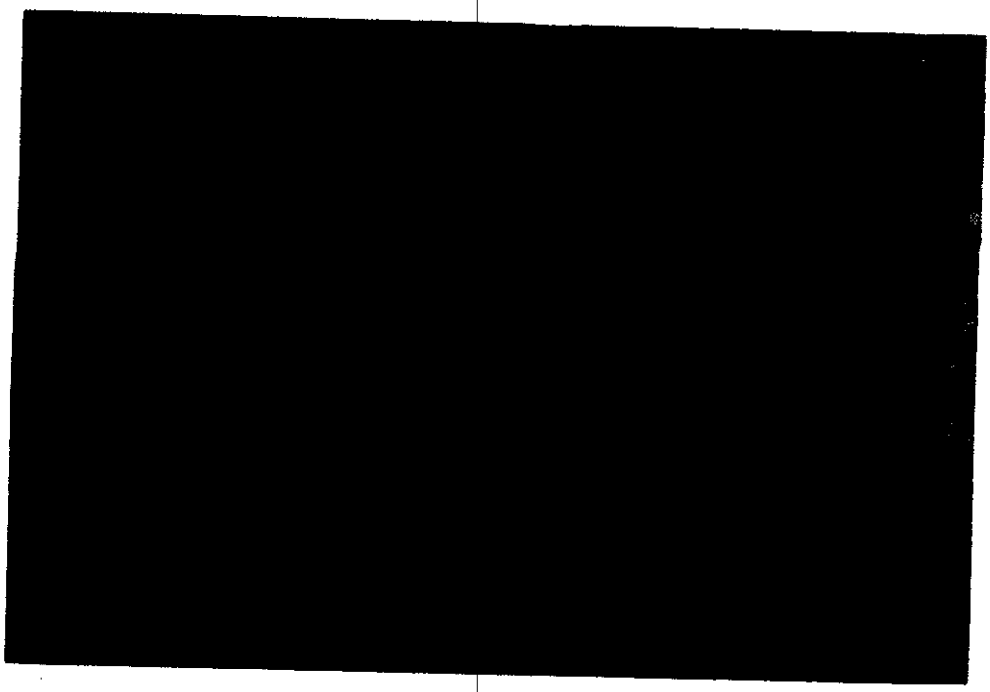

Fig. (70): *A photomicrograph of a section in the rectum of a rabbit after 2 months of daily oral administration of Larodopa showing a moderate reaction in the serotonin producing cells. The cells were ,apparently, increased in number (E).*
(Alkaline diazo Proj :10 Obj : 40).

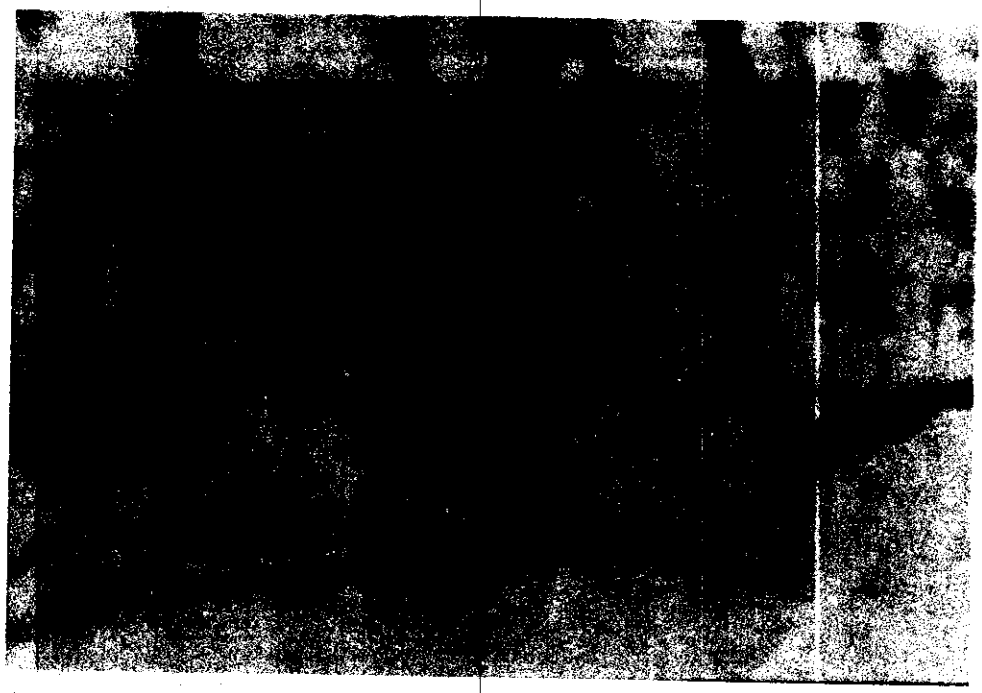

Fig. (71): *A photomicrograph of a section in the stomach fundus of a control rabbit showing a weak reaction in the oval and triangular - shaped adrenalin and nor adrenalin producing cells (E).*

(Modified chromaffin Proj : 10 Obj : 40).

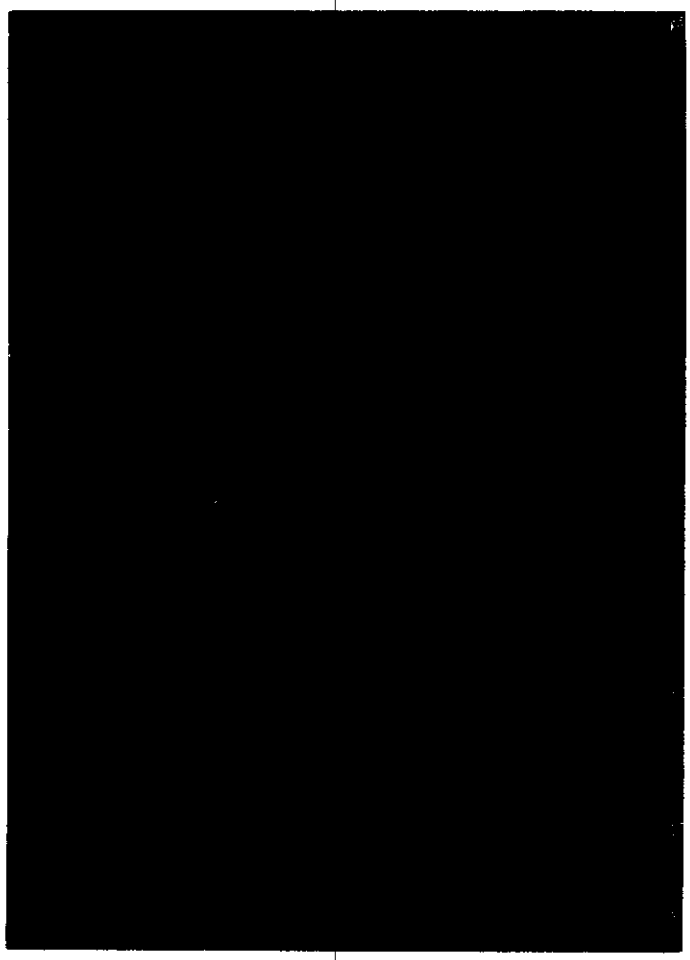

Fig. (73): *A photomicrograph of a section in the duodenum of a control rabbit showing a weak reaction in the oval and triangular-shaped adrenalin and noradrenalin producing enterochromaffin cells (E).*
(Modified chromaffin Proj : 10 Obj : 40)

Fig. (74): *A photomicrograph of a section in the appendix of a control rabbit showing a weak reaction in the oval-shaped adrenalin and noradrenalin producing cells (E).*
(Modified chromaffin Proj : 10 Obj :40).

d- Colon & Rectum :

Adrenaline and noradrenaline producing cells had a weak reaction and were located in the crypts (Figs.75, 76 & 77).

2) Experimental :

a- Stomach :

Adrenalin and noradrenalin producing cells had a moderate reaction, were enlarged and ,apparently, increased in number. They had brown cytoplasmic granules (Figs. 78 & 79).

b- Small intestine:

Adrenalin and noradrenalin producing cells had a moderate reaction, were enlarged and ,apparently, numerous (Fig.80). They had basal brown cytoplasmic granules.

c- Appendix :

Adrenalin and noradrenalin producing cells had a moderate reaction, were enlarged and ,apparently, increased number. They had brown cytoplasmic granules (Fig. 81).

d- Colon & Rectum :

Adrenalin and noradrenalin producing cells had a moderate reaction, were enlarged and were ,apparently, numerous. They had brown cytoplasmic granules withbasal concentration (Fig. 82 & 83).

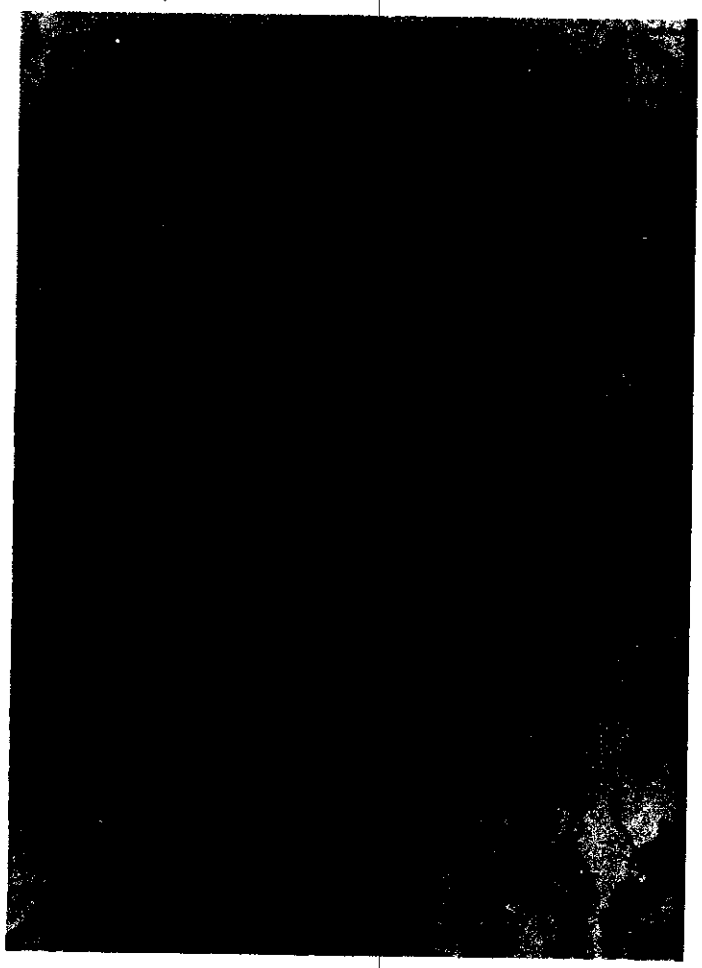

Fig. (75): *A photomicrograph of a section in the colon of a control rabbit showing a weak reaction in the rounded and triangular - shaped adrenalin and noradrenalin producing cells (E).*
(Modified chromaffin Proj : 10 Obj : 40).

***Fig. (76)** : A photomicrograph of a section in the rectum of a control rabbit showing a weak reaction in the adrenalin and noradrenalin producing cells (E).*
(Modified chromaffin Proj : 10 Obj : 40).

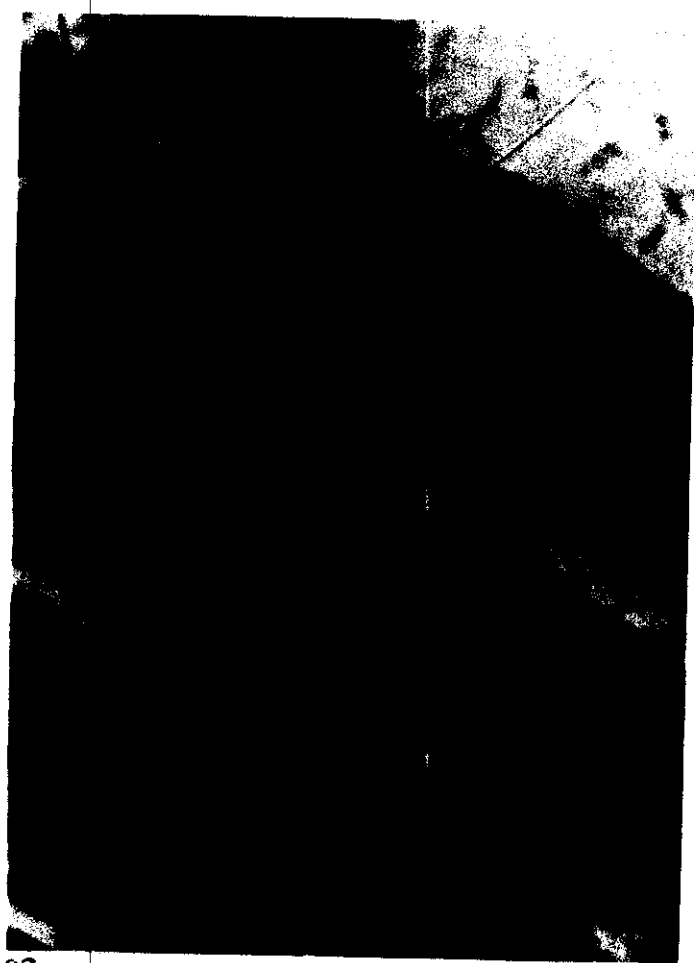

***Fig. (77):** A photomicrograph of a high power magnification of the previous section showing a weak reaction in the oval - shaped adrenalin and noradrenalin producing cells(E). (Modified chromaffin Proj. : 10 obj. : 100)*

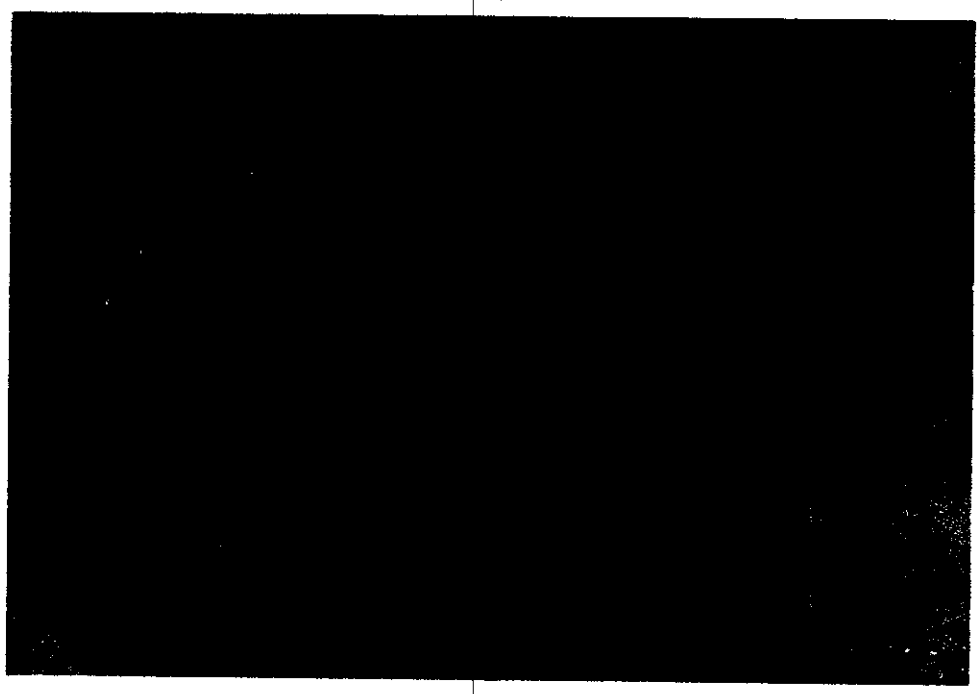

Fig. (78): *A photomicrograph of a section in the fundus of a rabbit after 2 months of daily oral administration of larodopa showing a moderate reaction in the oval and triangular-shaped adrenalin and noradrenalin producing cells. The cells were enlarged and ,apparently, increased in number.*
(Modified chromaffin Proj : 10 Obj :40).

Fig. (79) : *A photomicrograph of a section in the pylorus of a rabbit after 2 months of daily oral administration of larodopa showing a moderate reaction in the enterochromaffin cells (E). The cells were enlarged and ,apparently, numerous.*

(Modified chromaffin Proj : 10 Obj : 40).

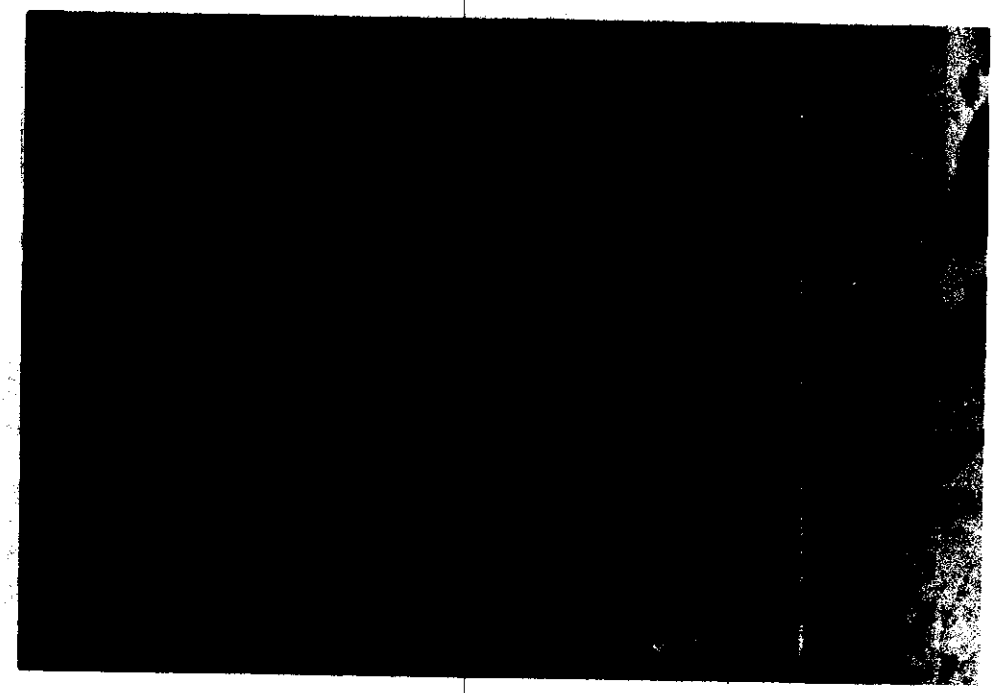

Fig. (80): *A photomicrograph of a section in the duodenum of a rabbit after 2 months of daily oral administration of larodopa showing a moderate reaction in the oval-shaped adrenalin and noradrenalin producing cells (E). The cells were enlarged and ,apparently, increased in number.*
(Modified chromaffin Proj. : 10 Obj. : 40).

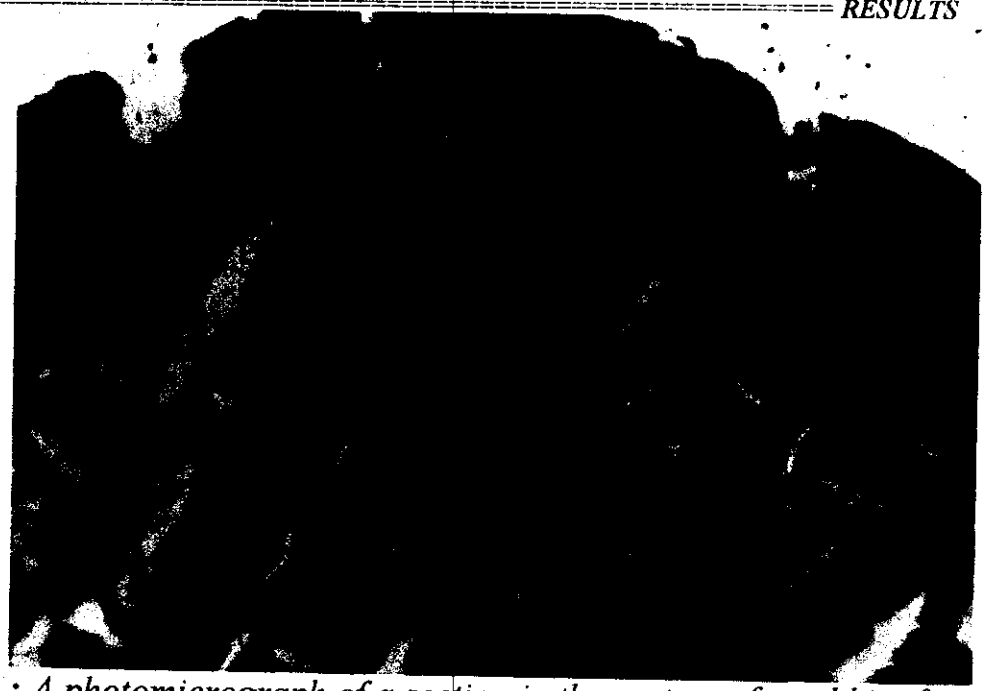

Fig. (82) : *A photomicrograph of a section in the rectum of a rabbit after 2 months of daily oral administration of Larodopa showing a moderate reaction in the adrenalin and noradrenalin producing cells (E). The cells were enlarged and ,apparently, numerous. (Modified chromaffin Proj : 10 Obj : 40).*

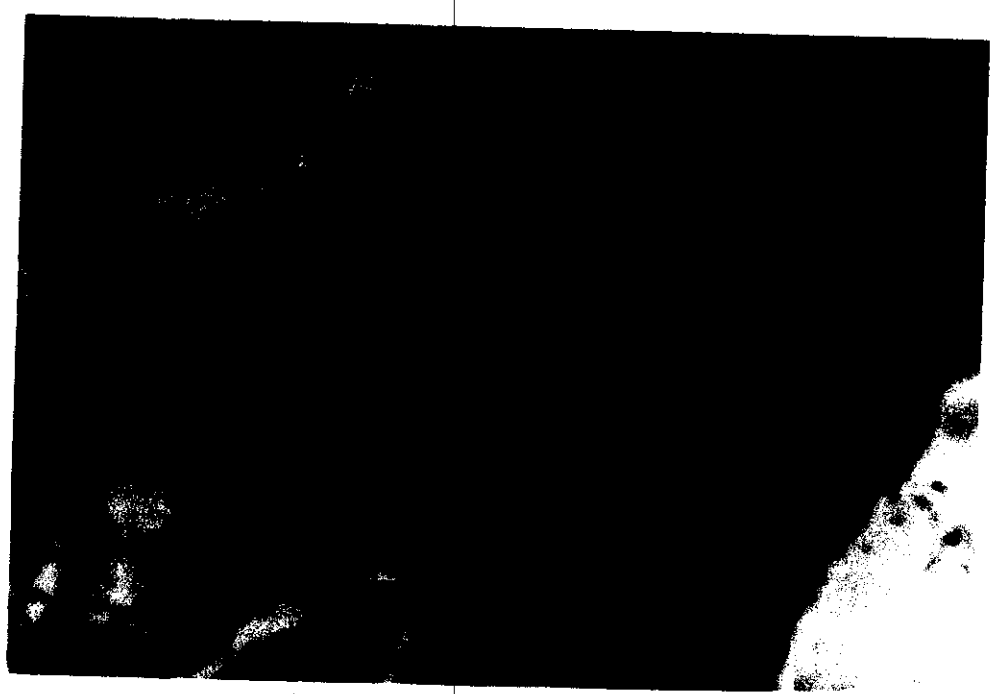

Fig. (83): *A photomicrograph of a high power magnification of the previous section showing large flask-shaped adrenalin and noradrenalin producing cells (E), occurring in groups of 2 cells with basal brown granules.*
(Modified chromaffin Proj : 10 Obj. : 100).

** PAS lead - Haemoatoxylin :

(1) Control :

a- Stomach :

Enteroendocrine (ECL, G & X) cells had a weak reaction and were located deep, in the gastric glands (Fig.84).

b- Small intestine :

Enteroendocrine (ECL, G & X) cells had a weak reaction and were located near the base of the villi (Fig.85). The magenta red coloured cells are goblet cells.

c- Appendix :

Enteroendocrine (ECL, G & X) cells had a weak reaction and were located in the crypts (Fig.86). Goblet cells aquired a magenta red colour.

d- Colon & Rectum :

Enteroendocrine (ECL, G & X) cells had a weak reaction and were located in the crypts (Figs. 87 & 88).

(2) Experimental :

a- Stomach :

Enteroendocrine (ECL, G & X) cells had a moderate reaction, were enlarged and ,apparently, numerous (Fig.89). They had blue cytoplasmic granules.

b - Small intestine :

Enteroendocrine (ECL, G & X) cells had a moderate reaction, enlarged and apparently numerous.

Fig. (84): *A photomicrograph of a section in the stomach fundus of a control rabbit showing a weak reaction in the rounded and oval - shaped enteroendocrine cells (E).*
(PAs-Lead Hx. Proj : 10 Obj : 40).

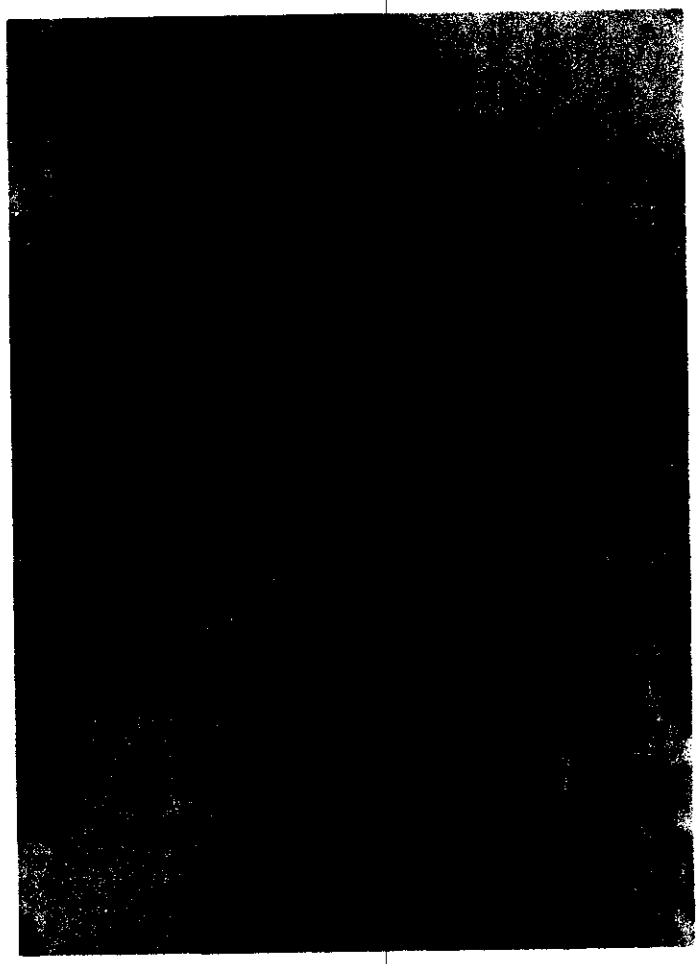

Fig. (85): *A photomicrograph of a section in the duodenum of a control rabbit showing a weak reaction in the oval - shaped enteroendocrine cells (E). (G) were goblet cells.*
(PAs lead - Hx Proj : 10 Obj : 40)

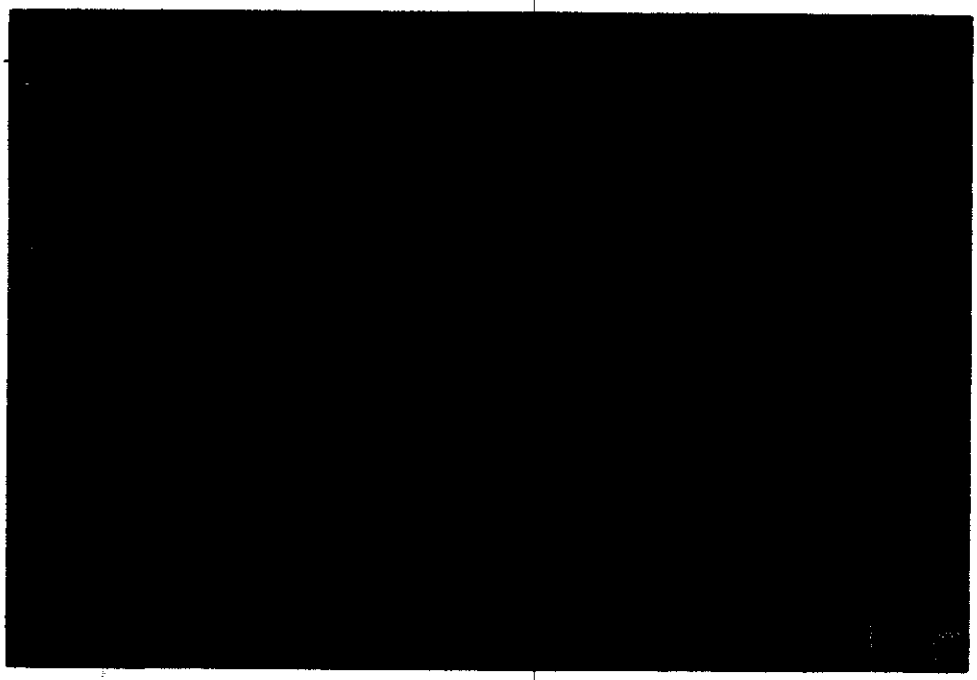

Fig. (86): *A photomicrograph of a section in the appendix of a control rabbit showing a weak reaction in the rounded - shaped enteroendocrine cells (E). (G) were goblet cells.*
(PAS lead - Hx Proj : 10 Obj : 40).

Fig. (87): *A photomicrograph of a section in the colon of a control rabbit showing a weak reaction in the rounded - shaped enteroendocrine cells (E). (G) were goblet cells.*
(PAS lead - Hx Proj : 10 Obj : 40).

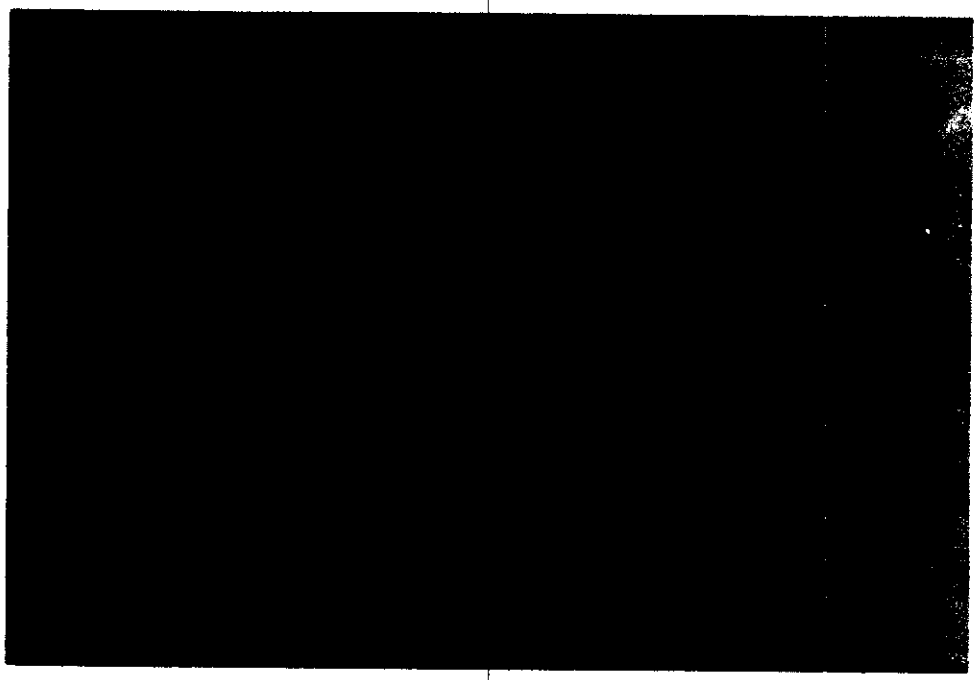

Fig. (88) : *A photomicrograph of a section in the rectum of a control rabbit showing a weak reaction in the oval - shaped enteroendocrine cells (E). (G) were goblet cells.*
(PAS lead - Hx Proj : 10 Obj : 40).

Fig. (89): *A photomicrograph of a section in the fundus of a rabbit after 2 months of daily oral administration of larodopa showing a moderate reaction in the enteroendocrine cells. The cells were enlarged and ,apparently, numerous (E).*

(PAs lead Hx Proj : 10 Obj : 40).

c- Appendix :

Enteroendocrine (ECL, G & X) cells had a moderate reaction were enlarged and ,apparently, increased in number.

d - Colon & Rectum :

Enteroendocrine (ECL, G & X) cells had a moderate reaction and were numerous. They had basal blue cytoplasmic granules (Figs. 90 & 91), however, goblet cells aquired a magenta red colour.

** Modified schofield silver impregnation method :

(1) Control :

a- Meissner's plexus:

Ganglion and Schwann cells of Meissner's plexus in the submucosa of the duodenum had a pale brown colour (Fig.92).

b- Auerbach's Plexus :

Ganglion and Schwann cells in the musculosa between the outer longitudinal and inner circular muscle layers had a pale brown colour (Fig. 93).

(2) Experimental :

Both of the plexuses were enlarged. Their cells were increased in size with an increased reaction (Figs. 94 & 95).

II- Second group :

*** Histological picture (After Haematoxylin and Eosin staining) :**

(1) Control :

A picture similar to the control of the first group was observed.

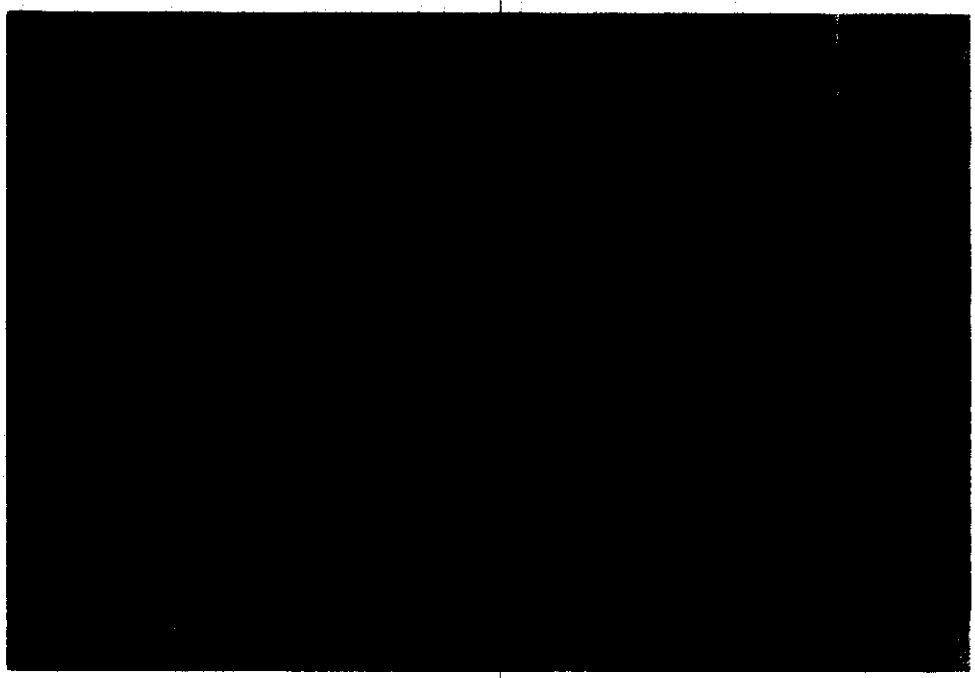

Fig. (90): *A photomicrograph of a section in the colon of a rabbit after 2 months of daily oral administration of larodopa showing a moderate reaction in the rounded and flask-shaped enteroendocrine cells. The cells were ,apparently, numerous (E). (G) were goblet cells.*

(PAS lead - HX Proj : 10 Obj : 40).

Fig. (92) : *A photomicrograph of a section in the duodenum of a control rabbit showing ganglion cells of Meissner's plexus (x) and nuclei of Schwann cells (y).*
(Modified schofield Proj : 10 Obj : 40).

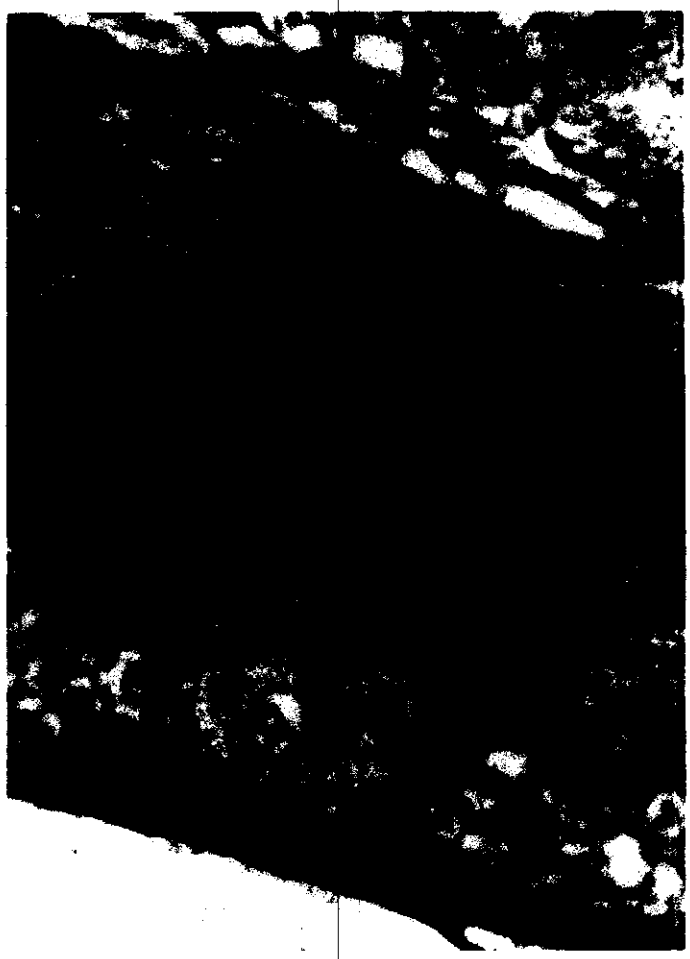

Fig. (93): *A photomicrograph of a section in the duodenum of a control rabbit showing ganglion cells of Auerbach's plexus (x) and nuclei of Schwann cells (y).*
(Modified Schofield Proj : 10 Obj : 40).

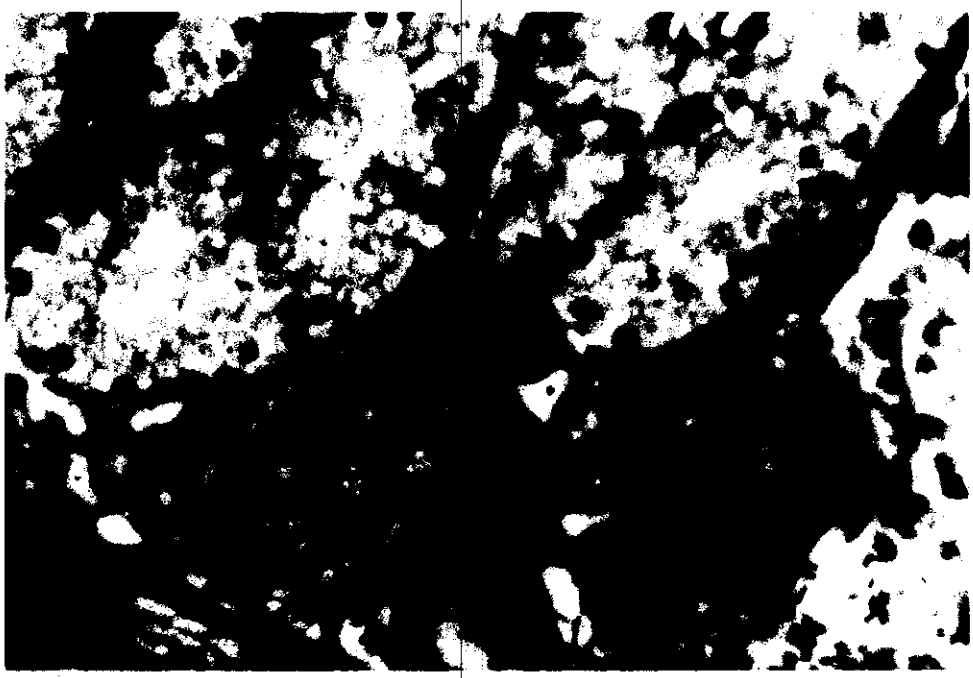

Fig. (94): *A photomicrograph of a section in the duodenum of a rabbit after 2 months of daily oral administration of larodopa showing large bundles of Meissner's plexus with increased reaction in the ganglion (x) and Schwann (Y) cells.*
(Modified Schofield Proj : 10 Obj : 40).

Fig. (95): *Photomicrograph of a section in the duodenum of a rabbit after 2 months of daily oral administration of larodopa showing large bundles of Auerbach's plexus with increased reaction in the ganglion (x) and Schwann cells (y).*

(Modified Schofield Proj : 10 Obj : 40).

(2) Experimental (After 4 months of daily oral administration of Larodopa):

Nearly the same picture of the fundus, pylorus, duodenum, jejunum, ileum, appendix, colon and rectum of the first group was observed (Figs. 96 & 97).

*** Histochemical picture :**

The results of the different histochemical reactions & stains (PAS reaction, Pascual stain, Singh modification of Masson Hamperl, Alkaline diazo, modified chromoffin reaction, PAS lead HX and modified Schofield silver impregnation methods), whether for the controls or the expreimental animals, were more or less as the 1st group (Figs. 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108 & 109).

III - Third group :

*** Histological picture (After Haematoxylin and Eosin staining).**

(1) Control :

A picture near to that of the previous groups was observed.

(2) Experimental (After 6 months of daily oral administration of larodopa):

â- Stomach :

The gastric mucosa became thicker with marked dilatation of blood vessels (Figs. 110, 111 & 112). The gastric glands became ,apparently, numerous, tortuous with marked folding (Fig. 110) and apparent incrased in number of the surface and lining epithelium.

Fig. *(97): A photomicrograph of a section in the colon of a rabbit after 4 months of daily oral administration of Larodopa showing folded crypts (R) with ,apparent, increase in the number of epithelial cells (e).*

(HX, E Proj : 10 Obj :40).

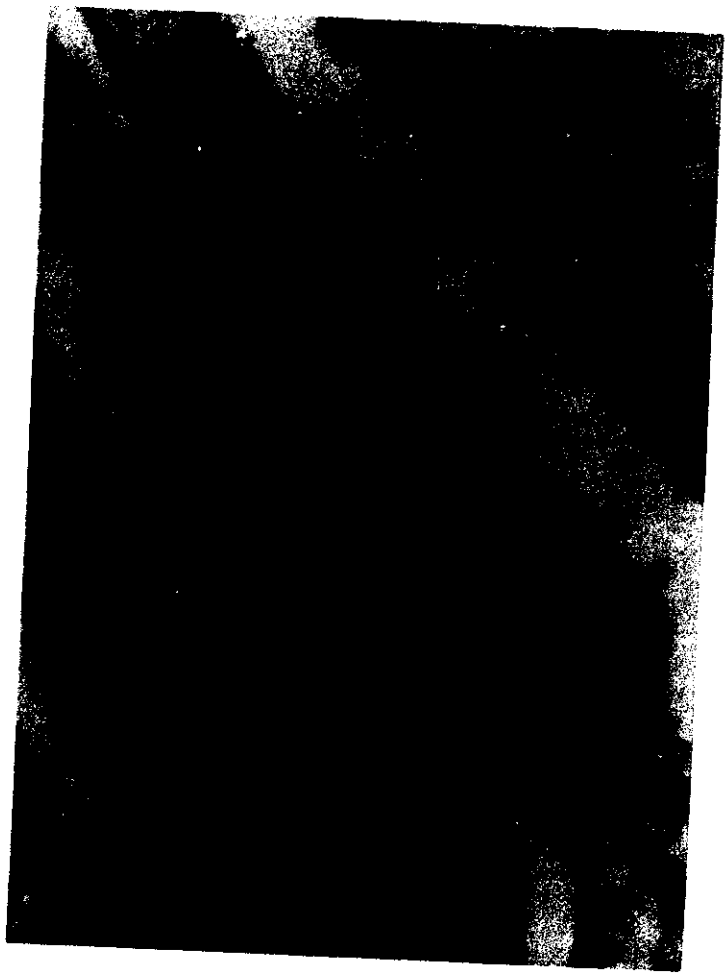

Fig. (98): *A photomicrograph of a section in the duodenum of a rabbit after 4 months of daily oral administration of Larodopa showing a moderate PAs reaction in the ,apparently, numerous larger goblet cells (G).*

(PAS. Proj : 10 Obj. 40).

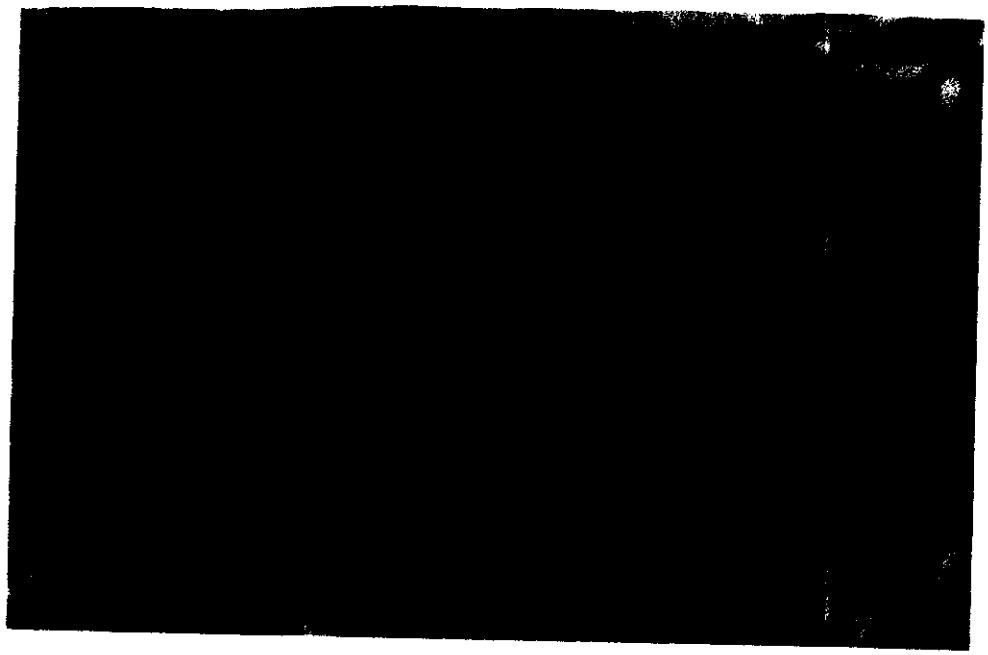

Fig. (99): *A photomicrograph of a section in the pylorus of a rabbit after 4 months of daily oral administration of larodopa showing a moderate to a strong reaction in the argyrophil cells. The cells were triangular, rounded - shaped and ,apparently, increased in number (E).*

(Pascual stain Proj : 10 Obj : 40).

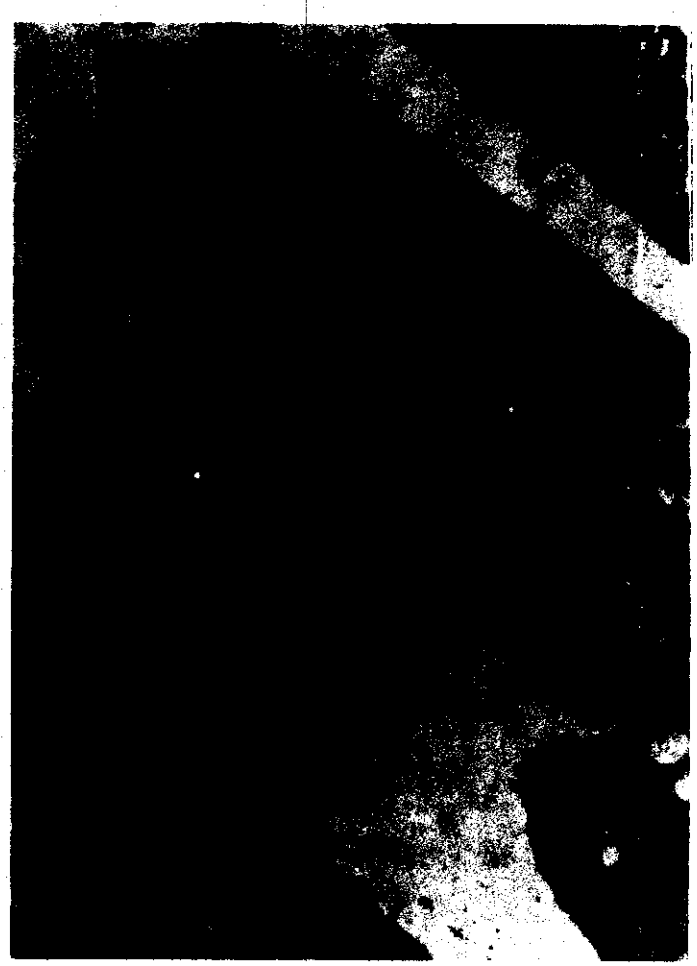

Fig. (100): *A photomicrograph of a section in the duodenum of a rabbit after 4 months of daily oral administration of larodopa showing a moderate reaction in the oval argyrophil cells (E). (Pascual Proj. : 10 Obj. : 40).*

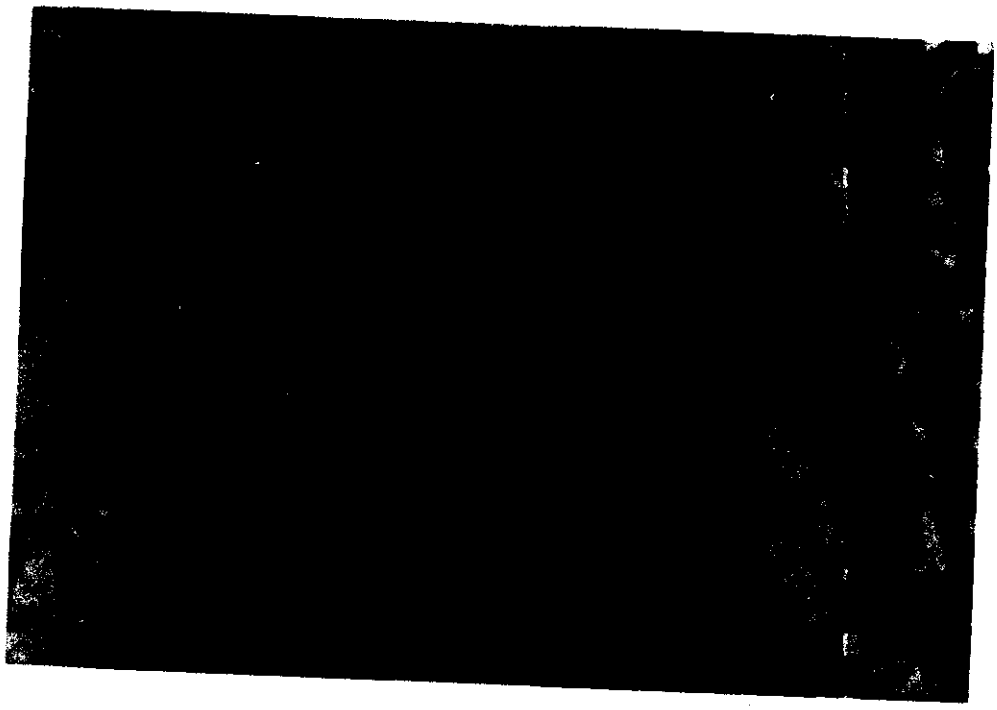

Fig. (103): *A photomicrograph of a section in the ileum of a rabbit after 4 months of daily oral administration of larodopa showing a moderte reaction in the enterochromaffin cells (E). The cells were rounded, oval in shape and ,apparently, incrased in number.*
(Singh modification of Masson - Hamperl proj : 10 obj : 40).

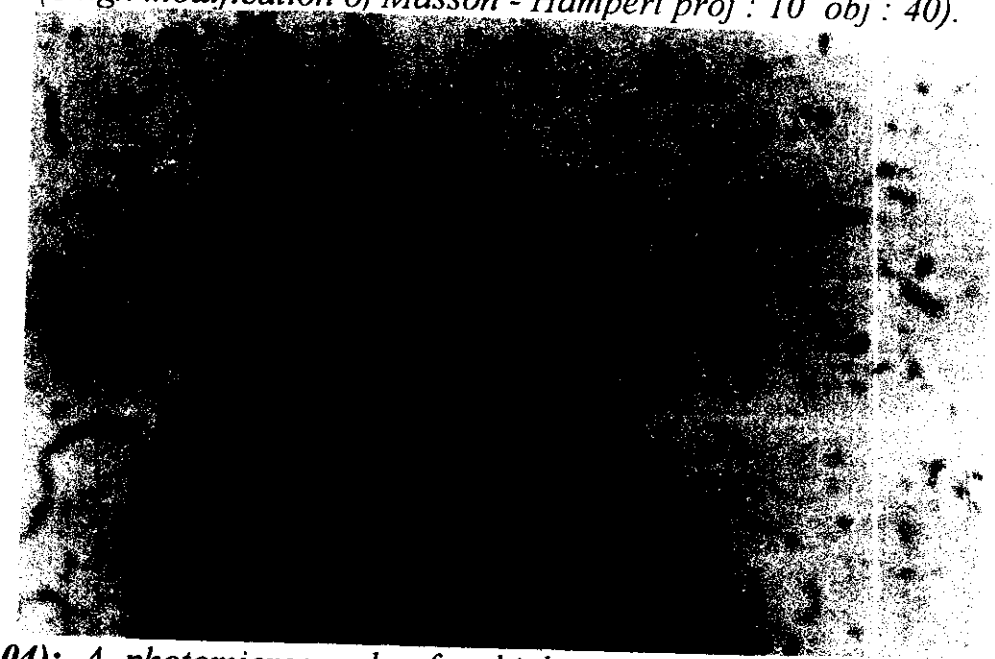

Fig. (104): *A photomicrograph of a high power magnification of the previous section showing 2 large rounded and flask-shaped enterochromaffin cells (E) stuffed with brown granules.*
(Singh modification of Masson - Hampel Proj : 10 Obj.:100).

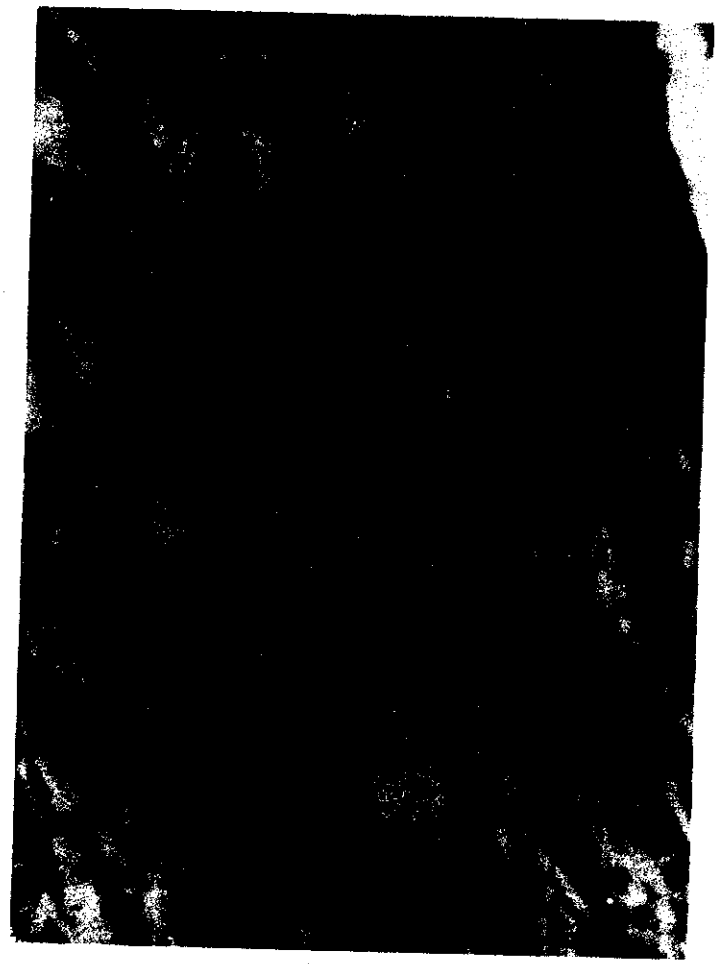

Fig. (105): *A photomicrograph of a section in the colon of a rabbit after 4 months of daily oral administration of larodopa showing a moderate reaction in the enterochromaffin cells (E). The cells were oval in shape, enlarged and ,apparently, numerous. (Singh modification of Masson-Hamperl. Proj : 10 Obj :40).*

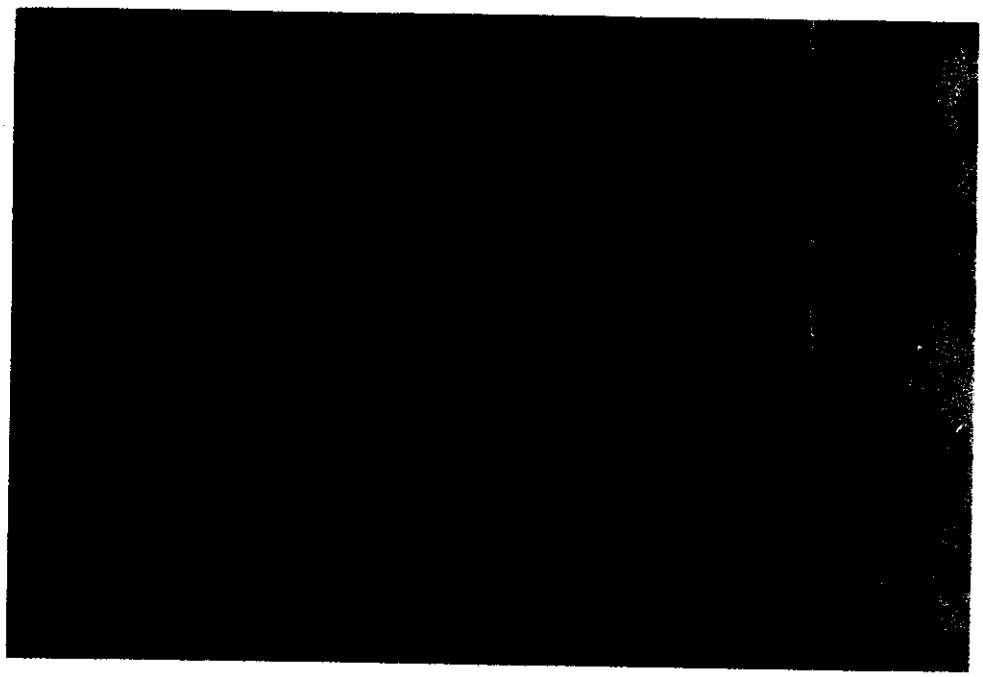

Fig. (106): *A photomicrograph of a section in the duodenum of a rabbit after 4 months of daily oral administration of Larodopa showing a weak to a moderate reaction in the serotonin producing cells (E). The cells were oval in shape, enlarged and ,apparently, increased in number.*

(Alkaline diazo Proj : 10 Obj : 40).

Fig. (107): *A photomicrograph of a section in the colon of a rabbit after 4 months of daily oral administration of Larodopa showing a moderate reaction in the adrenalin and noradrenalin producing cells (E). The cells were oval, rounded in shape, enlarged and ,apparently, increased in number.*
(Modified chromaffin Proj. : 10 Obj. : 40).

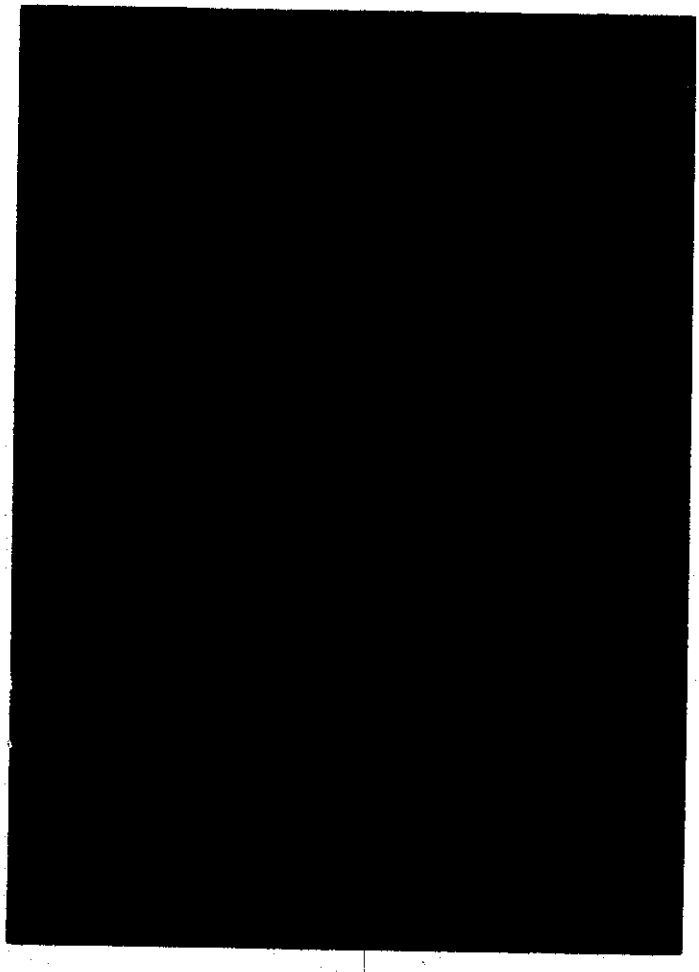

Fig. (108) *: A photomicrograph of a section in the duodenum of a rabbit after 4 months of daily oral administration of larodopa showing a moderate reaction in the enteroendocrine cells (E). The cells were oval - shaped, enlarged and ,apparently, numerous .*

(PAS lead Hx Proj : 10 Obj :40).

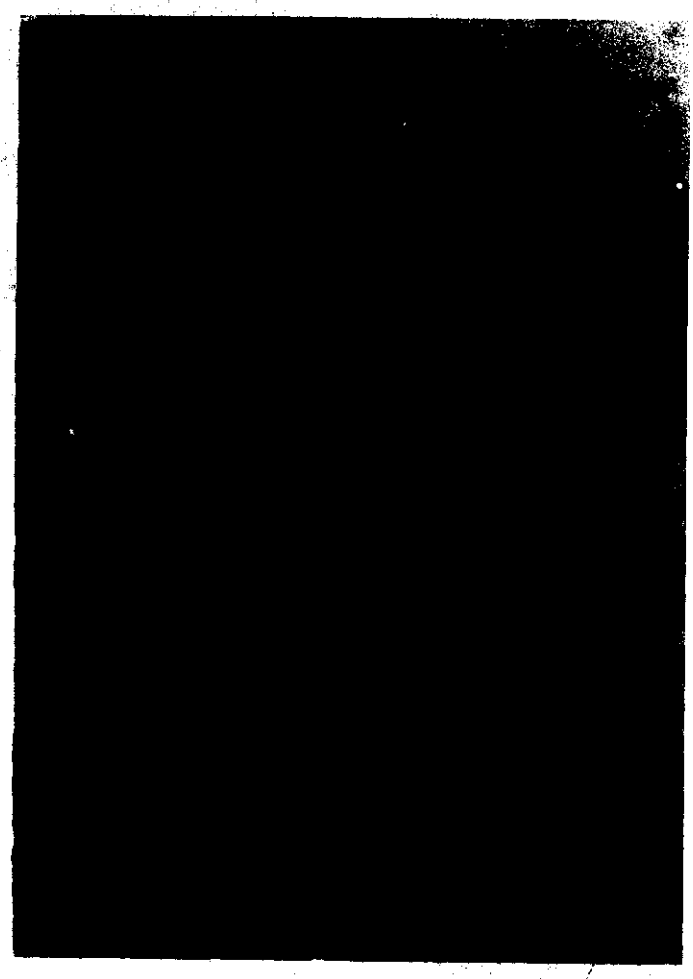

Fig. (110): *A photomicrograph of a section in the fundus of the stomach of a rabbit after 6 months of daily oral administration of Larodopa showing more foldness and and ,apparently, more increase in number of the surface and lining epithelium (e) (HX,E Proj : 10 Obj : 40).*

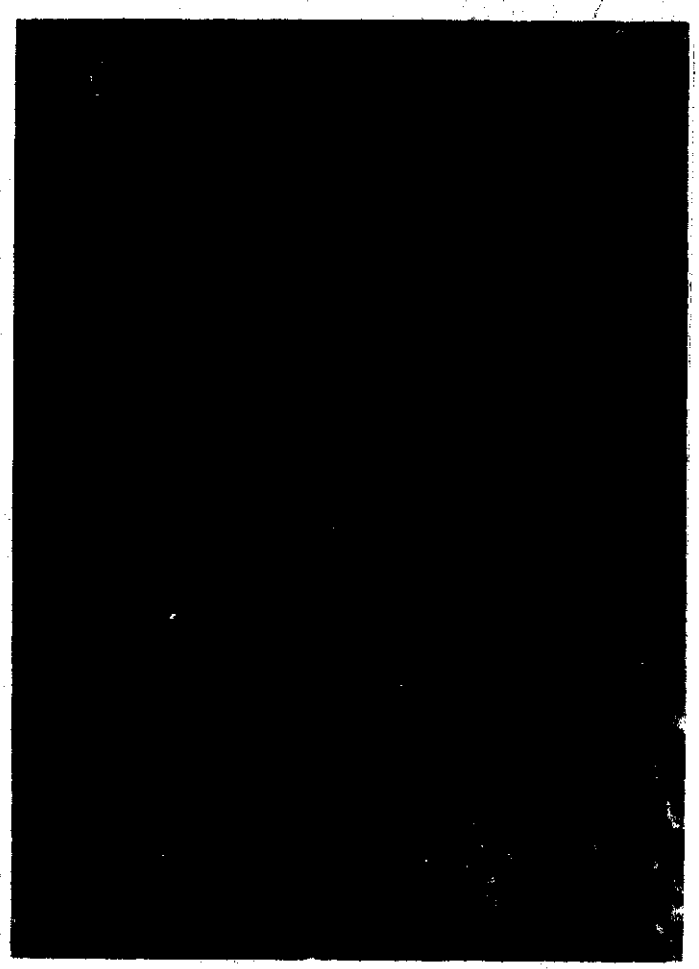

Fig.(111): *Another photomicrograph of a section in the fundus of the stomach of a rabbit after 6 months of daily oral administration of Larodopa showing marked dilatation and engorgement of blood vessels (V). Gastric glands were ,apparently, more numerous and more tortuous (g) (H X, E Proj:10 Obj : 40).*

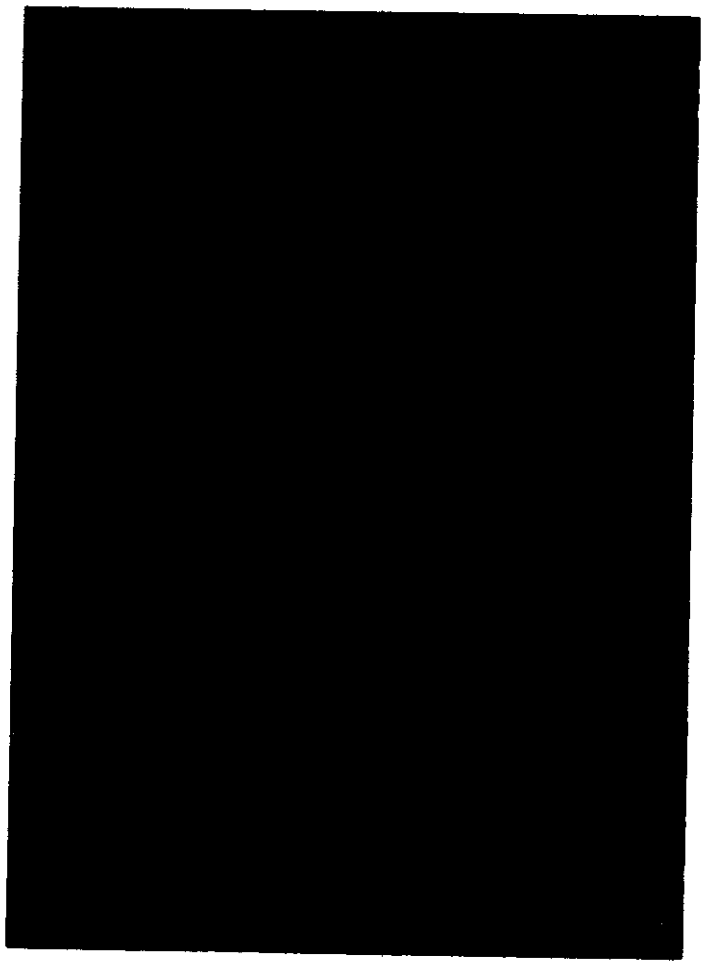

Fig. (112): *A photomicrograph of a section in the pylorus of a rabbit after 6 months of daily oral administration of Larodopa showing that pyloric glands were more numerous and tortuous (g) with marked ,apparent, increase in number of the surface and lining epithelium (e).*

(HX, E Proj : 10 Obj : 20).

b- Small intestine:

The mucosa showed more folding and crowdness of the villi. The covering epithelium showed an ,apparent, increase in number (Figs. 113,114 & 115). The blood vessels were engorged and dilated (Figs. 114 & 115).

c- Appendix :

The epithelium showed an ,apparent, increase in the number of cells with numerous enlarged goblet cells. The crypts were folded with markedly dilated blood vessels in between (Fig.116).

d- Colon & Rectum :

The epithelium showed ,apparent, more numerous cells. The crypts were packed and folded with ,apparently, numerous enlarged goblet cells (Figs. 117 & 118).

* Histochemical picture :

**** Periodic acid. Schiff's reaction :**

1) Control :

A picture similar to that of the previous groups was observed.

2) Experimental :

a- Stomach:

The surface epithelial cells and the mucous cells in the gastric glands aquired a strong PAS reaction (Figs. 119 & 120) with evident ,apparent, increase in number of the mucous secreting cells.

b- Small intestine :

Goblet cells became more numerous at the sides of villi and crypts and had a storng reaction compared to the previous groups (Fig.121).

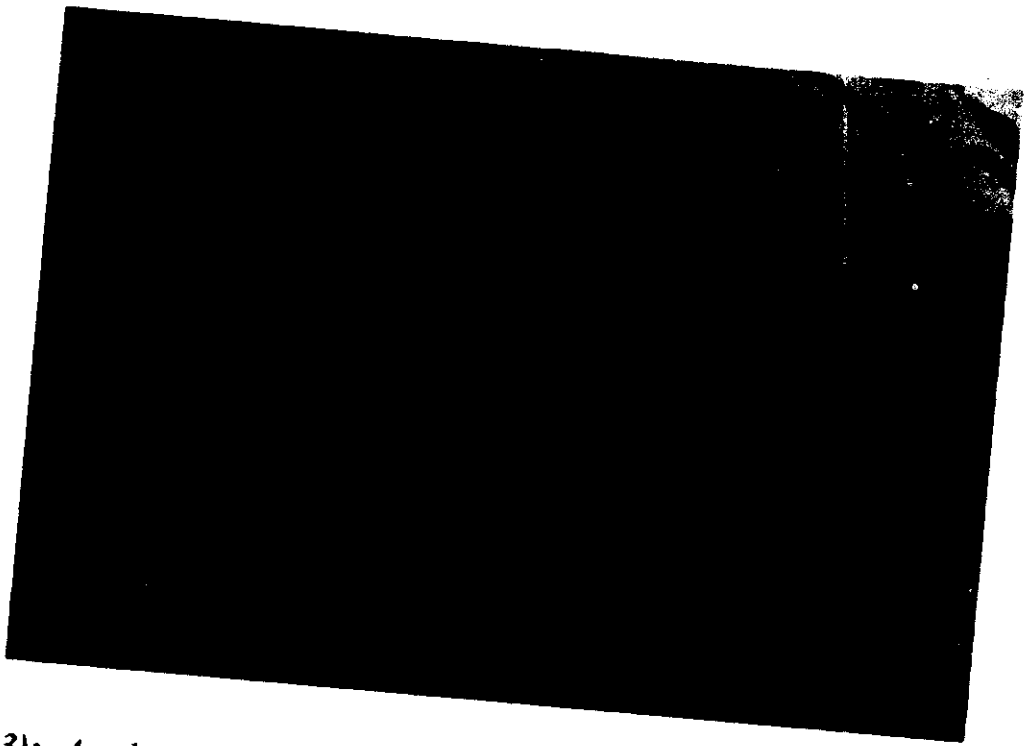

Fig. (113): *A photomicrograph of a section in the duodenum of a rabbit after 6 months of daily oral administration of Larodopa showing more foldness and crowdness of villi (arrows) with marked ,apparent, increase in number of the covering epithelium (e).*

(HX, E Proj : 10 Obj : 40).

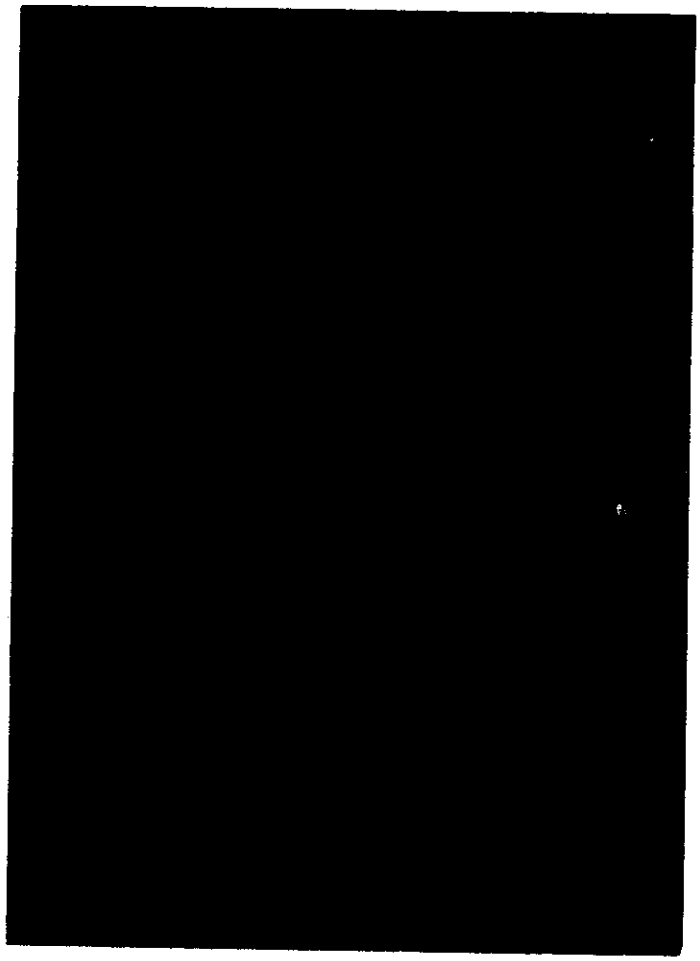

***Fig. (114)** : A photomicrograph of a section in the jejunum of a rabbit after 6 months of daily oral administration of Larodopa showing marked ,apparent, increase in number of the epithelial cells (e).The crypts were folded (R). and blood vessels were engorged and dilated (V).*

(HX, E Proj : 10 Obj : 40).

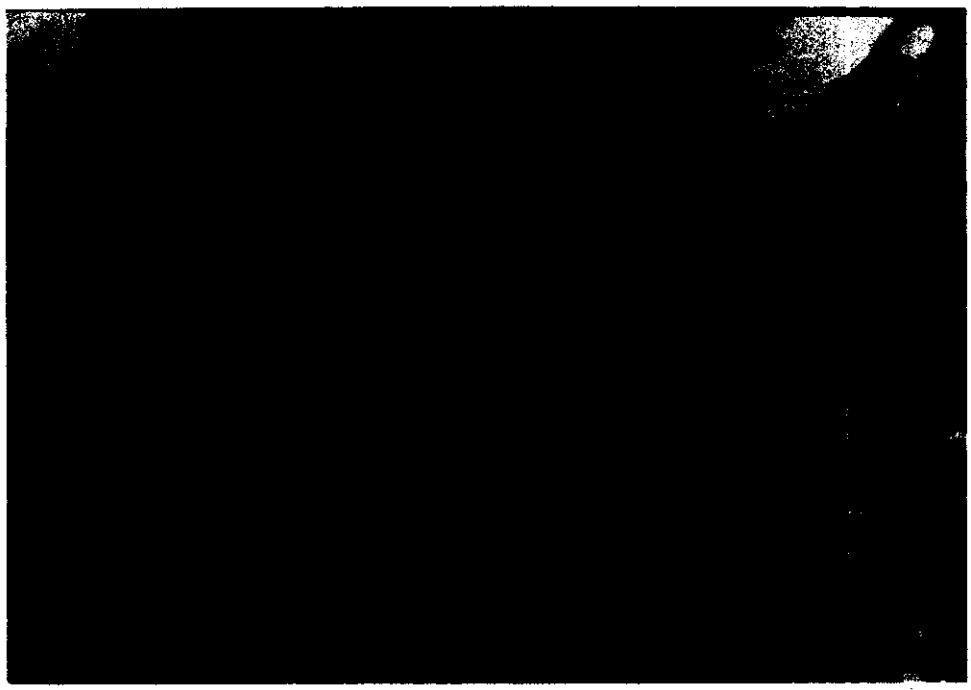

Fig. (115): *A photomicrograph of a section in the ileum of a rabbit after 6 months of daily oral administration of Larodopa showing ,apparently, numerous epithelial cells (e), Packed crypts (R), engorged and dilated blood vessels (V).*

(HX, E Proj : 10 Obj : 40).

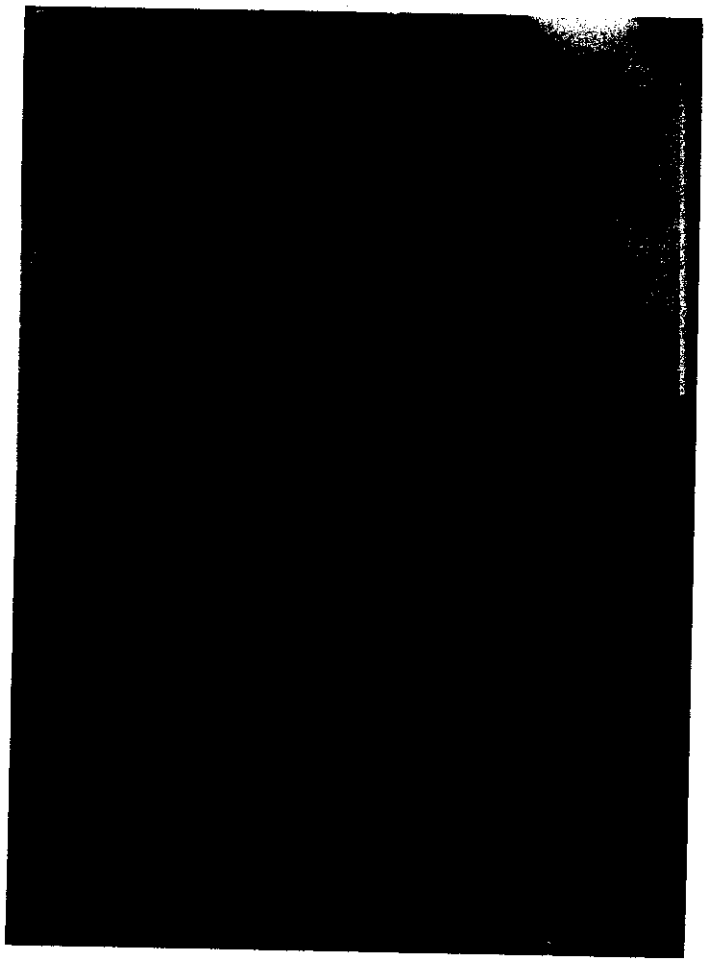

Fig. (116): *A photomicrograph of a section in the appendix of a rabbit after 6 months of daily oral administration of Larodopa showing more apparent increase in the number of the epithelial cells (e) and goblet cells (G). The crypts were packed (R) with engorged and dilated blood vessels (V).*

(HX, E Proj : 10 Obj : 40).

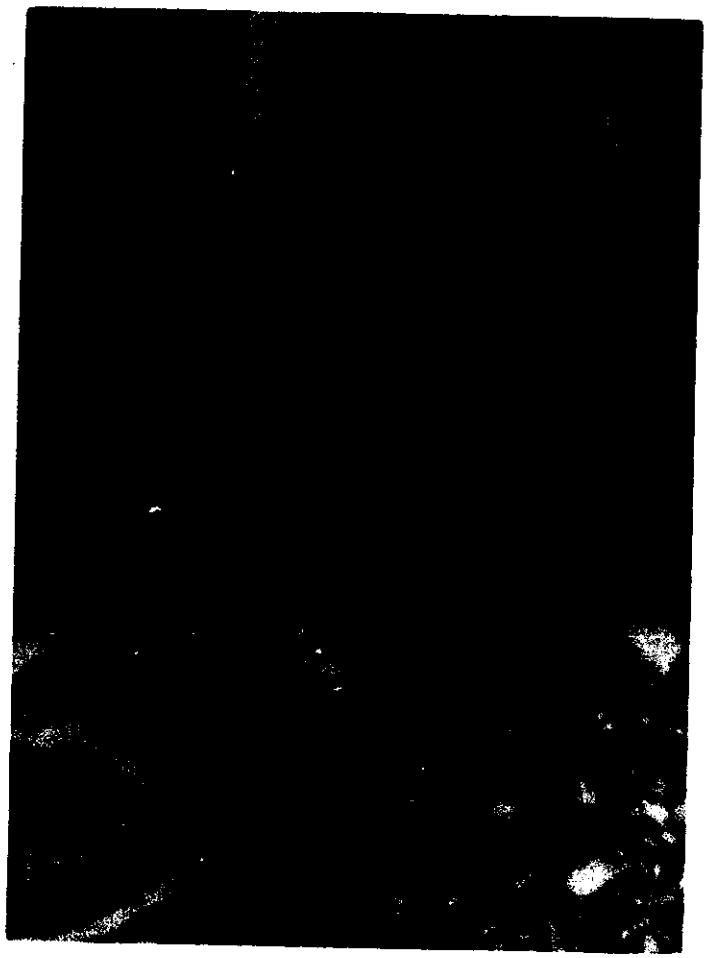

Fig. *(117): A photomicrograph of a section in the colon of a rabbit after 6 months of daily oral administration of Larodopa showing ,apparent, more increase in number of the epithelial cells (e) with numerous enlarged goblet cells (G) the crypts were folded and packed (R).*

(HX, E Proj : 10 Obj : 40).

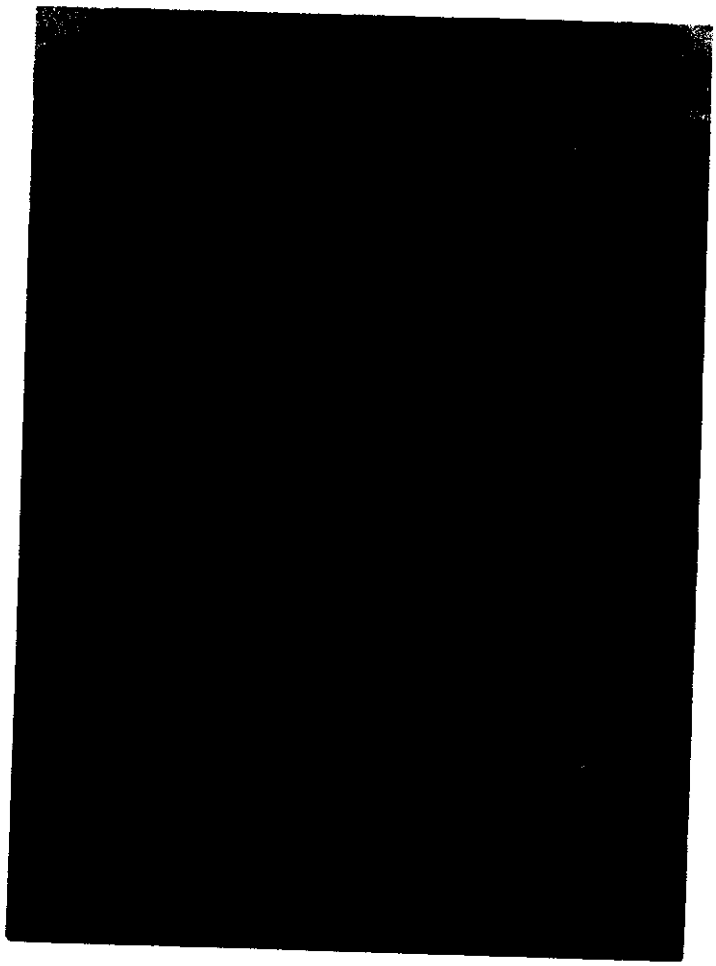

Fig. (118): *A photomicrograph of a section in the rectum of a rabbit after 6 months of daily oral administration of Larodopa showing ,apparent, more increase in the number of the epithelial cells (e) and goblet cells (G). The crypts were folded (R) with dilated blood vessel in between (V).*

(HX, E Proj : 10 Obj : 40).

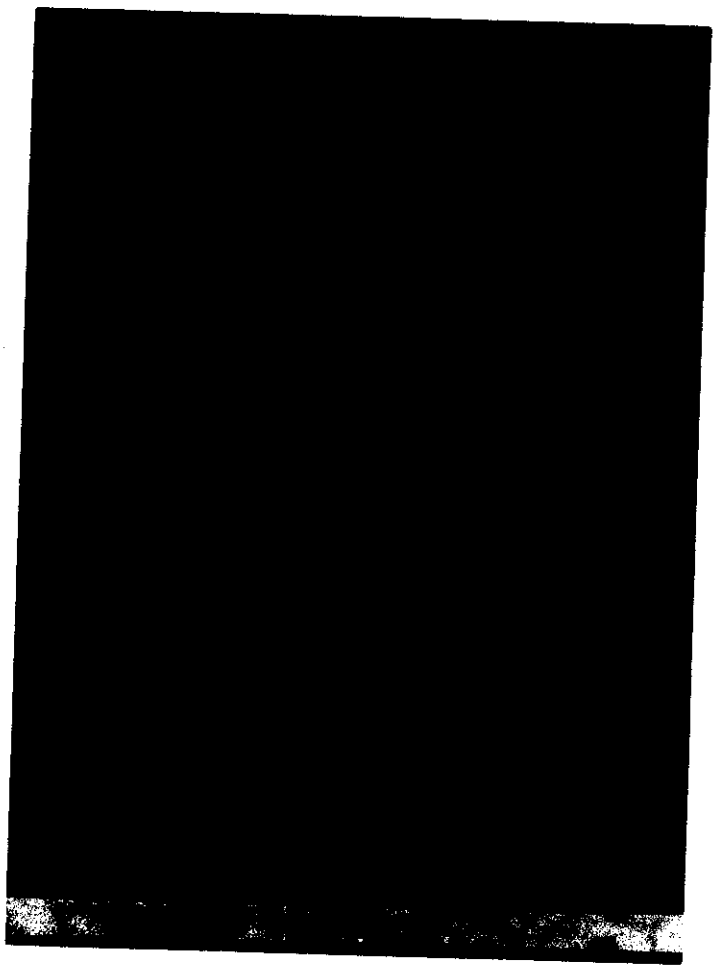

Fig. (119) *: A photomicrograph of a section in the fundus of the stomach of a rabbit after 6 months of daily oral administration of Larodopa showing a strong PAS reaction in the surface epithelial cells (e) and mucous secreting cells of the gastric glands (U).*

(PAS Proj : 10 Obj : 40).

Fig. (120): *A photomicrograph of a section in the pylorus of a rabbit after 6 months of daily oral administration of Larodopa showing a strong PAS reaction in the surface epithelial cells, the cells lining the fovealea of glands (e) and the mucous secreting cells of pyloric glands (U).*

(PAs Proj : 10 Proj : 40).

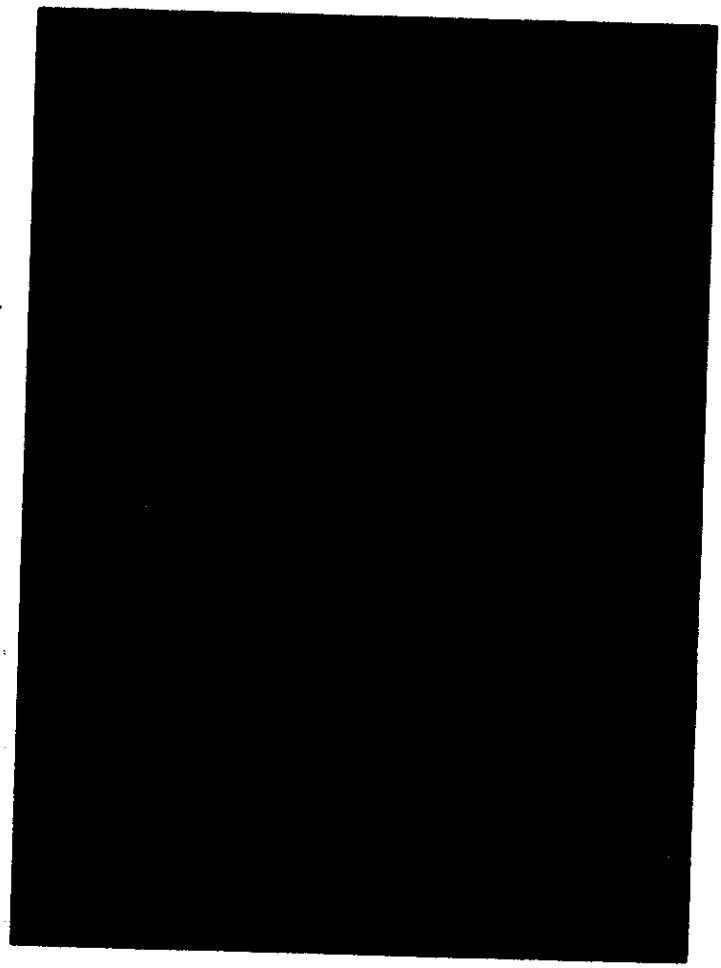

Fig. (121): *A photomicrograph of a section in the duodenum of a rabbit after 6 months of daily oral administration of Larodopa showing a strong PAS reaction in the ,apparently, numerous and large goblet cells (G).*

(PAS Proj : 10 Obj : 40).

c- Appendix :

Goblet cells became ,apparently, more and more numerous, enlarged and had a strong PAS reaction (Fig. 122).

d- Colon & Rectum :

Goblet cells became ,apparently, more numerous, enlarged and had a strong PAS reaction (Figs. 123 & 124).

** Pascual's stain :

1) Control :

A picture similar to that of the previous groups was observed.

2) Experimental

a) Stomach :

Argyrophil cells had a moderate to a strong reaction with ,apparent, more increase in number (Figs. 125, 126 & 127). Numerous cells were stuffed with deep brown cytoplasmic granules. Groups of 2-3 cells were present.

b- Small intestine :

Argyrophil cells had a strong reaction and were enlarged with ,apparent, increase in number of the cells. (Figs. 128 & 129).

c- Appendix :

Argyrophil cells had a strong reaction and located in the crypts. They had basal brown cytoplasmic granules (Fig. 130).

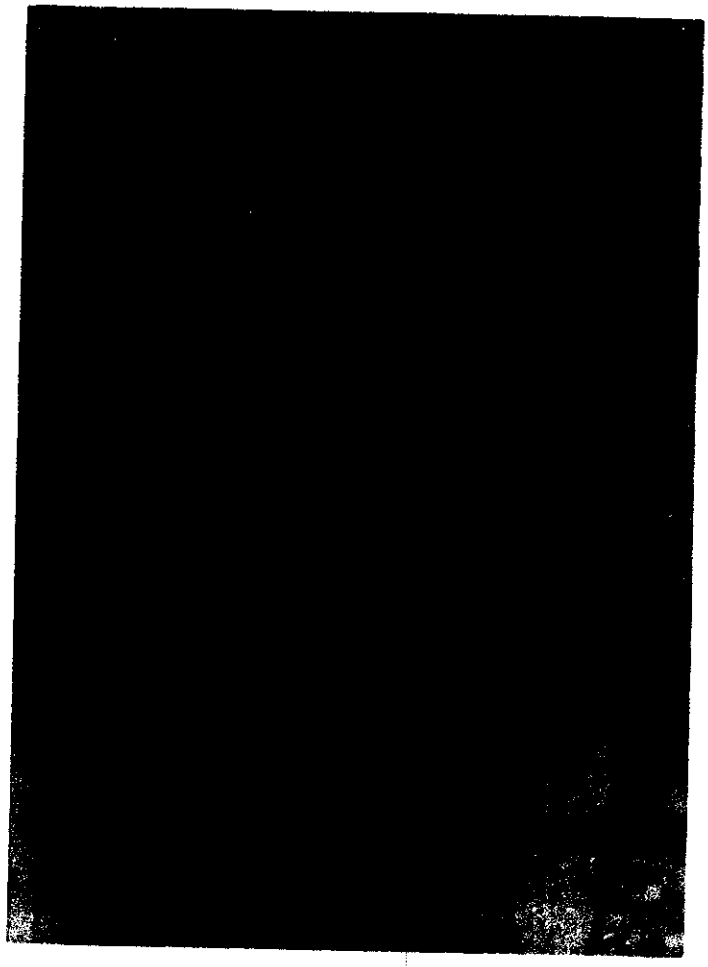

Fig. (122): *A photomicrograph of a section in the appendix of a rabbit after 6 months of daily oral administration of Larodopa showing a strong PAS reaction in the ,apparently, more numerous enlarged goblet cells (G).*

(PAS Proj : 10 Obj : 40).

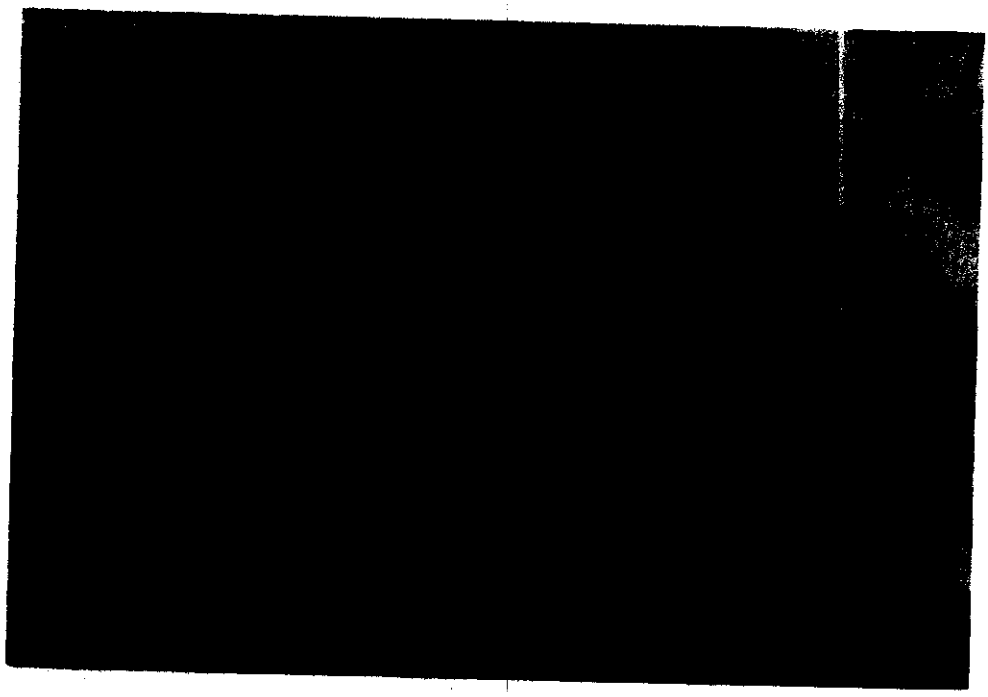

***Fig. (123)** : A photomicrograph of a section in the colon of a rabbit after 6 months of daily oral administration of Larodopa showing a strong PAS reaction in the ,apparently, more numerous and more enlarged goblet cells (G).*

(PAS Proj : 10 Obj : 40

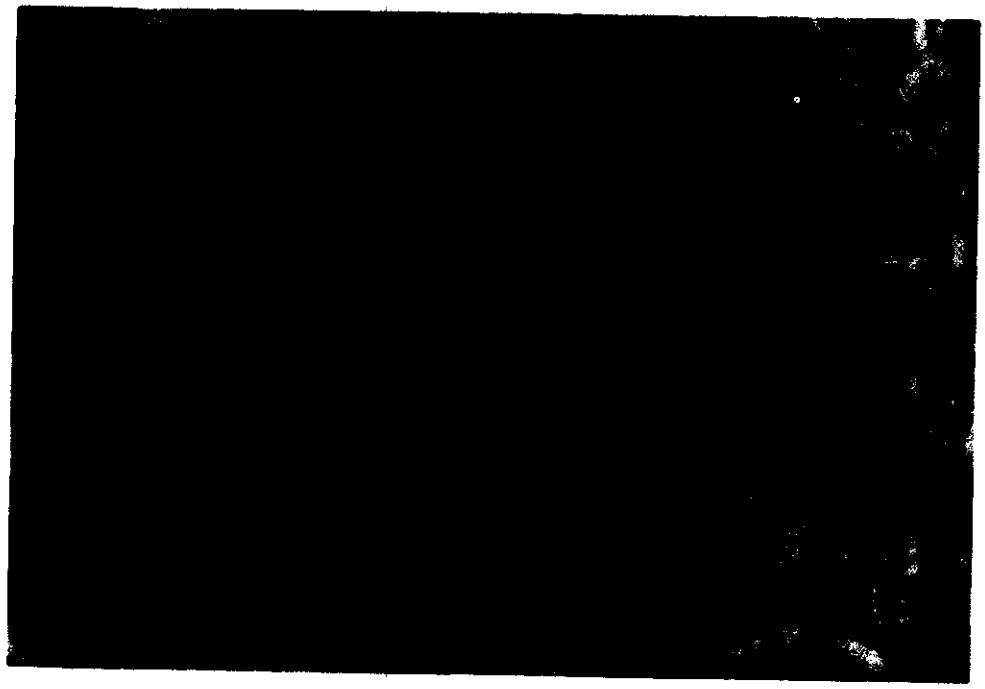

Fig. (125): *A photomicrograph of a section in the fundus of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the argyrophil cells; with ,apparent, more increase in their number (E).*

(Pascual stain Proj : 10 Obj : 40).

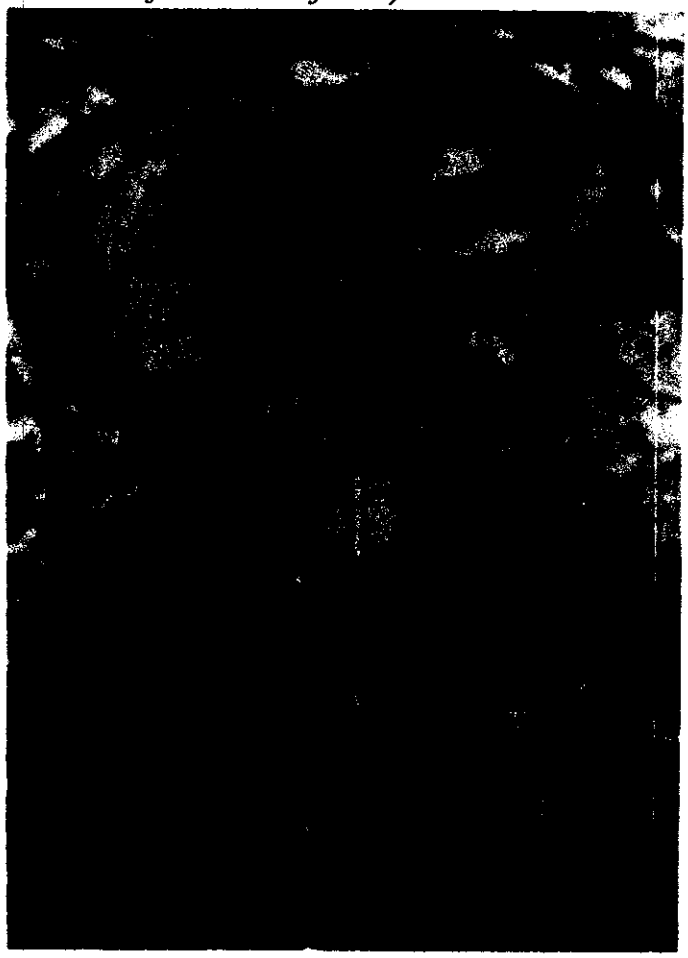

Fig. (126): *A photomicrograph of a high power magnification of the previous section showing a strong granular reaction in the large argyrophil cells (E). The cells were triangular and flask-shaped.*
(Poscual stain Proj.:10 Obj.: 100).

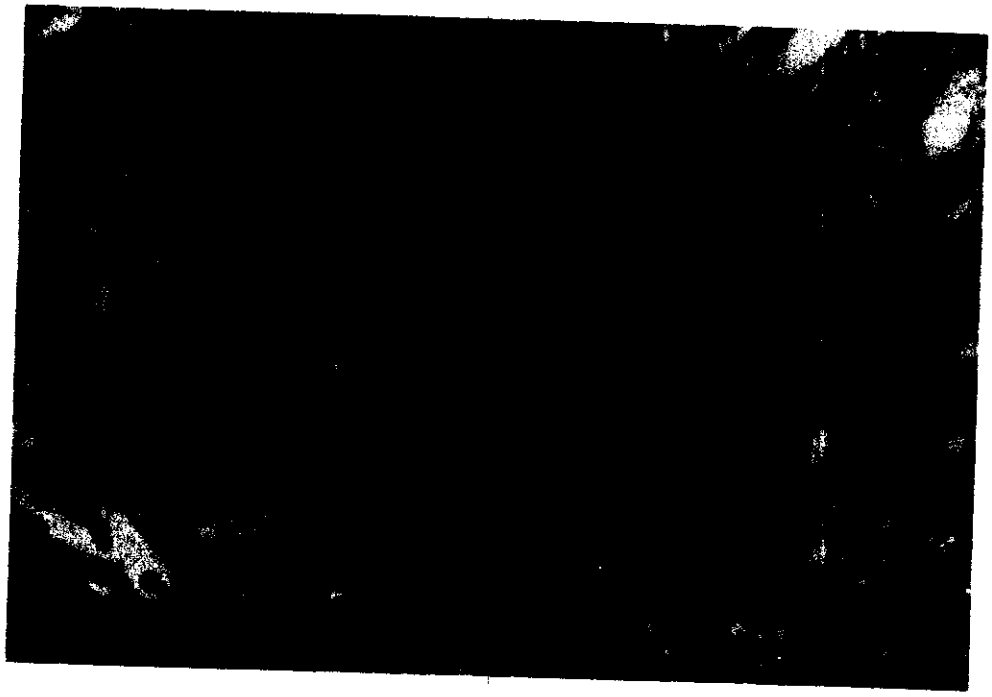

Fig. (127): *A photomicrograph of a section in the pylorus of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the oval, rounded and flask-shaped argyrophil cells. The cells were ,apparently, numerous (E).*
(Pascual stain Prof. 10 Obj. : 40)

Fig. (128): *A photomicrograph of a section in the duodenum of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the argyrophil cells (E). The cells were flask-shaped and ,apparently, increased in number .*
(Pascual stain Proj : 10 Obj :40)

Fig. (129): *A photomicrograph of a section in the jejunum of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the argyrophil cells (E). The cells were oval, rounded in shape and ,apparently, increased in number.*

(Pascual stain Proj. : 10 Obj. 40).

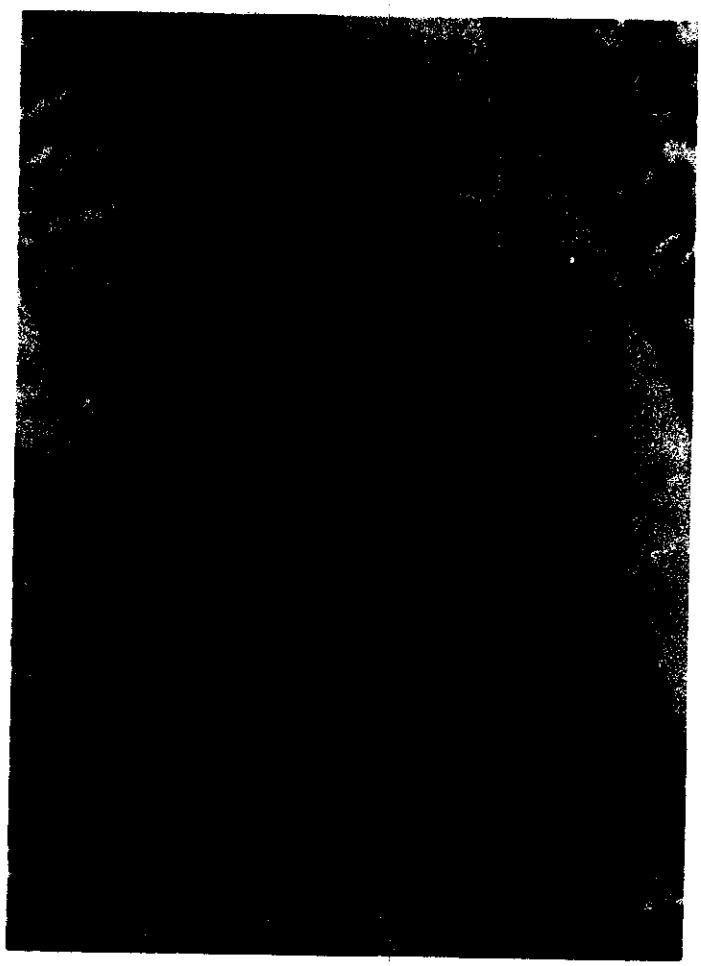

Fig. (130): *A photomicrograph of a section in the appendix of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the argyrophil cells (E). The cells were oval in shape and ,apparently, more numerous (Pascual stain Proj :10 Obj :0).*

d- Colon & Rectum :

Argyrophil cells had a strong reaction with ,apparently, more numerous cells (Fig.131). Groups of 2 - 3 cells were present Fig. (132).

**** Singh modification of Masson - Hamperl :**

1) Control :

A picture near to that of the previous groups was observed

2) Experimental:

a- Stomach :

Enterochromaffin (EC) cells had a strong reaction. They were enlarged with ,apparent, increase their in number (Figs. 133 & 134). They had dark brown cytoplasmic granules. Groups of 2 cells were present.

b- Small intestine :

Enterochromaffin (EC) cells had a strong reaction and were located at the sides and near the bases of the villi. They had brown cytoplasmic granules (Figs. 135, 136 & 137). Groups of 2-3 cells were present (Fig. 135).

c- Appendix :

Enterochromaffin (EC) cells had a strong reaction and were located in the crypts. The cells were stuffed with dark brown cytoplasmic granules (Figs. 138 & 139). Groups of 2 - 3 cells were present.

d- Colon & Rectum :

Enterochromaffin (EC) cells had a strong reaction with more enlargement and apparent more increased in their number. They were stuffed with dark brown granules (Figs.140 & 141).

Fig. (131): *A photomicrograph of a section in the colon of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the argyrophil cells. The cells were oval in shape and ,apparently, more numerous (E).*
(Pascual stain Proj : 10 Obj : 40).

Fig. (132): *A photomicrograph of a section in the rectum of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the oval, rounded and flask-shaped argyrophil cells. The cells were ,apparently, more numerous (E).*

(Pascual's Proj : 10 Obj : 40).

Fig. (133): *A photomicrograph of a section in the stomach fundus of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the oval, rounded and flask-shaped enterochromaffin cells (E). The cells were more enlarged and ,apparently, more numerous with groups of 2 cells (arrows). (Singh Modification of Masson-Hamperl Proj : 10 Obj :40)*

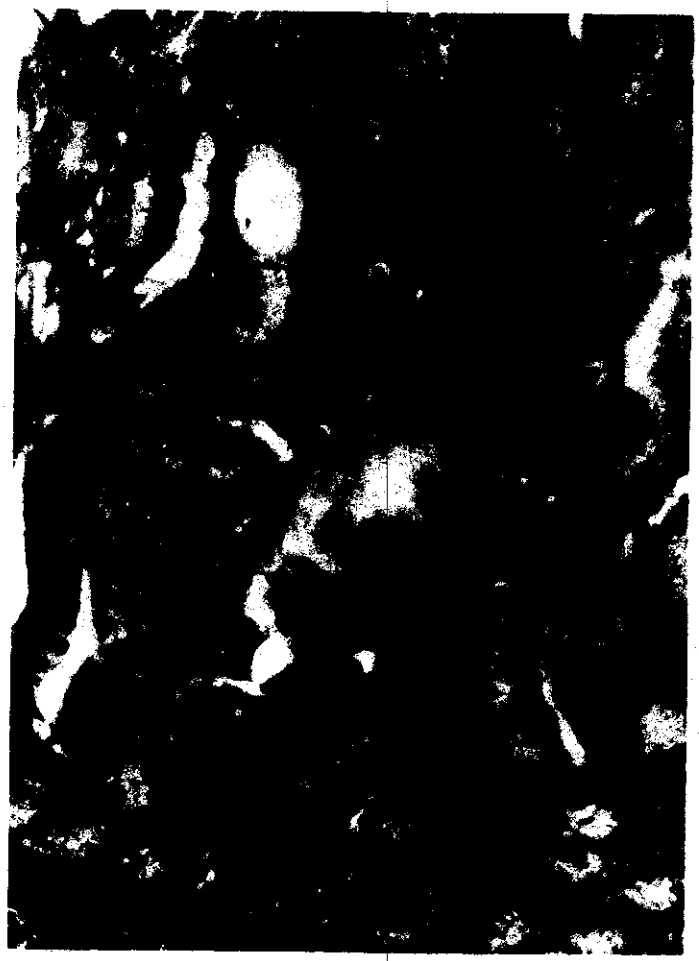

Fig. (134): *A photomicrograph of a section in the pylorus of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the oval enterochromaffin cells. The cells were enlarged and ,apparently, increased in number cells (E).*
(Singh modification of Masson-Hamperl Proj : 10 Obj : 40).

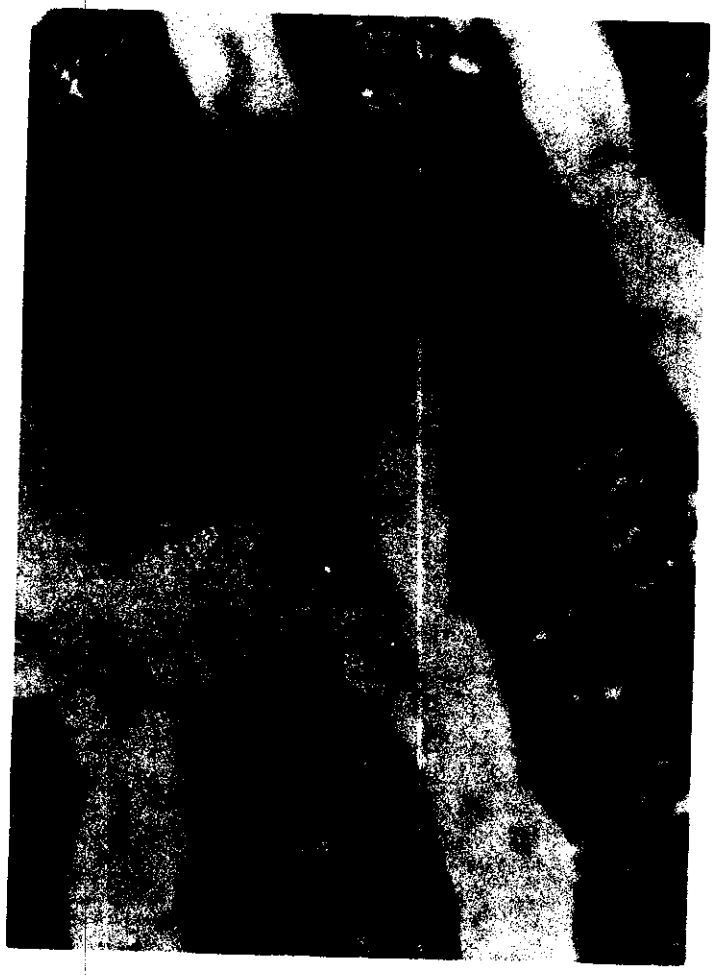

Fig. (136): *A photomicrograph of a section in the ileum of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the enterochromaffin cells (E). The cells were enlarged and ,apparently, numerous (Singh modification of Masson - Hamperl proj: 10 obj : 40).*

Fig. (137): *A photomicrograph of a high power magnification of the previous section showing a strong reaction in the oval, flask-shaped and enlarged enterochromaffin cells (E).*
(Singh modification of Masson - Hamperl Proj.: 10 Obj. : 40)

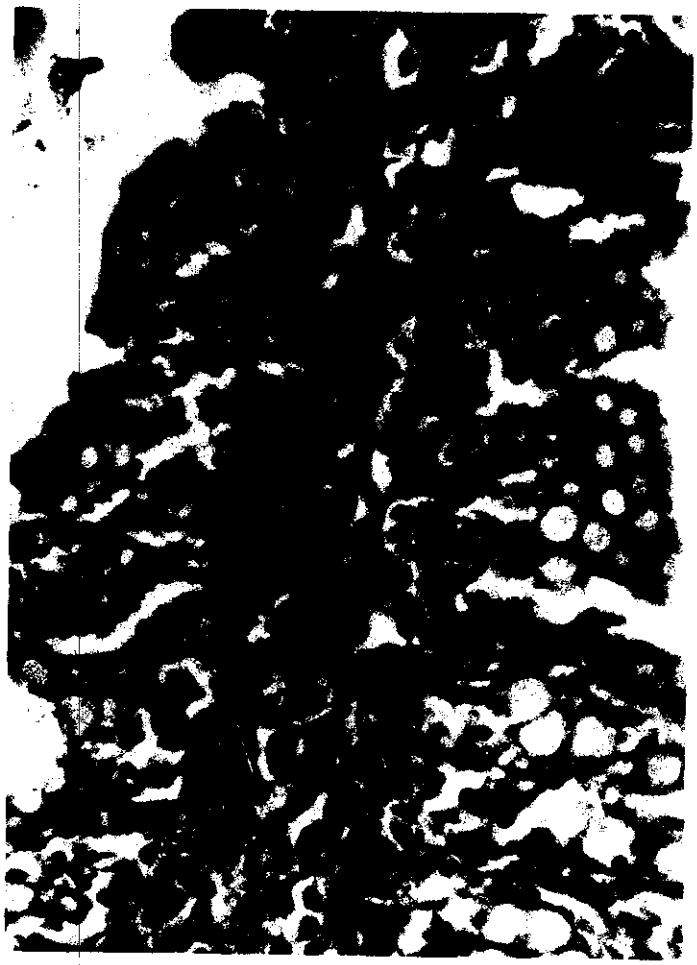

Fig. (138): *A photomicrograph of a section in the appendix of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in enterochromaffin cells (E). The cells were more enlarged and ,apparently, more increased in number (Singh modification of Masson-Hamperl Proj : 10 Obj :40).*

Fig. (139): *A photomicrograph of a high power magnification of the previous section showing a strong reaction in the large enterochromaffin cells (E) with a group of 2 cells (arrows).*
(Singh modification of Masson-Hamperl Proj.:10 Obj. :100).

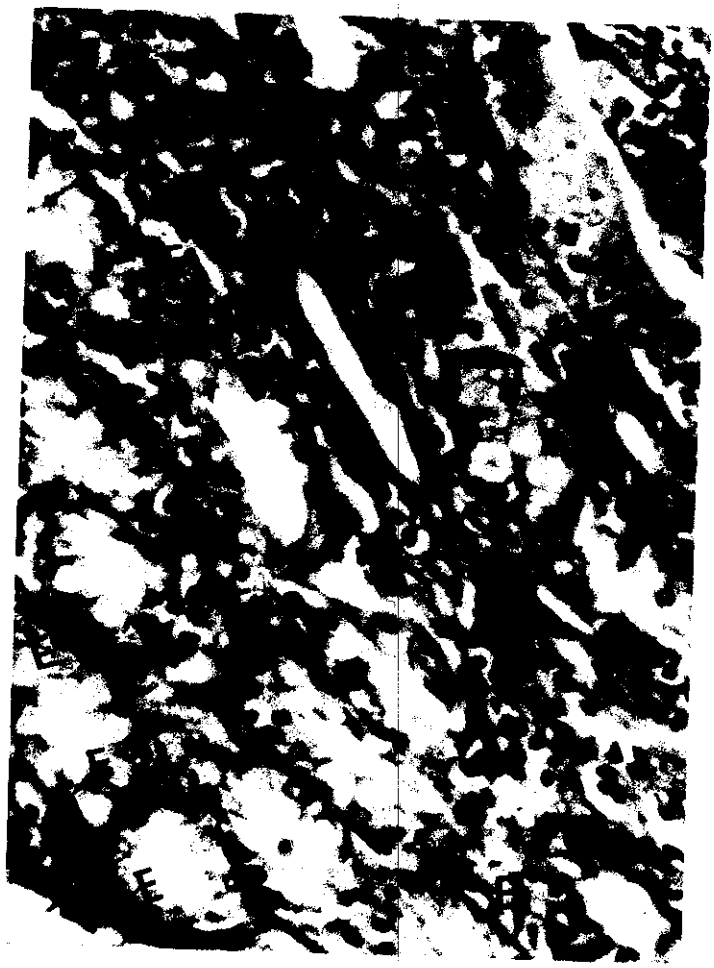

Fig. (140) : *A photomicrograph of a section in the colon of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the enterochromaffin cells (E). The cells were oval, rounded, flask-shaped, more enlarged and ,apparently, more numerous.*
(Singh modification of Masson-Hamperl Proj : 10 Obj :40).

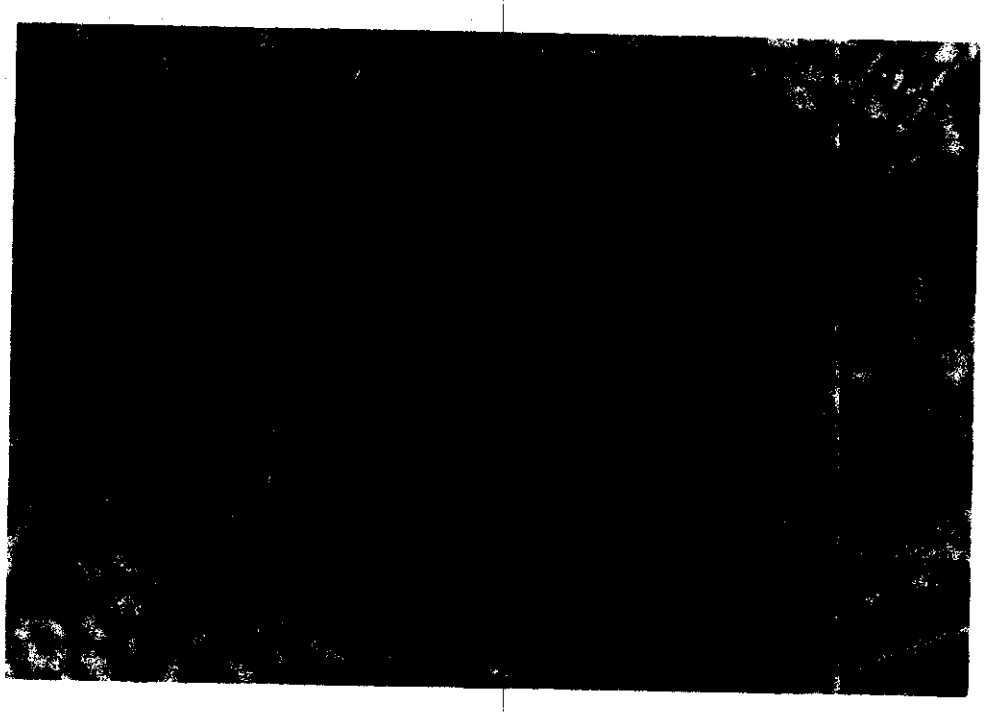

Fig. (141): *A photomicrograph of a section in the rectum of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the enterochromaffin cells (E). The cells were flate, oval - shaped and ,apparently, more increased in their number.*
(Singh modification of Masson Hamperl Proj : 10 Obj : 40).

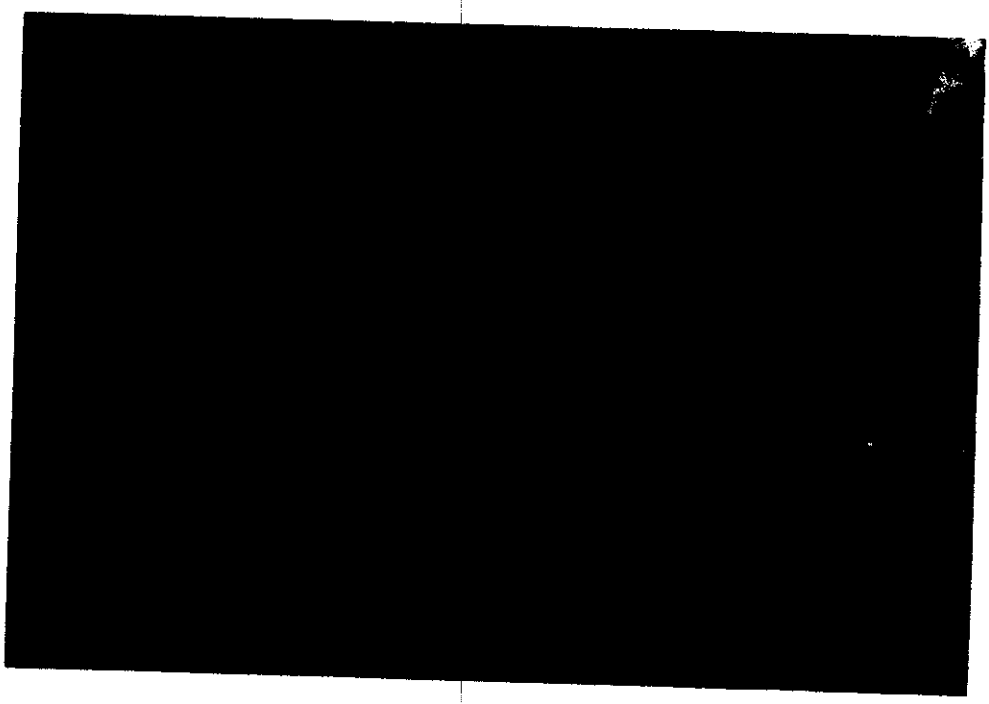

Fig. (142): *A photomicrograph of a section in the stomach fundus of a rabbit after 6 months of daily oral administration of Larodopa showing a strong reaction in the serotonin producing cells (E). They were more enlarged and apparently more increased in number*

(Alkaline diazo Proj : 10 Obj : 40).

Fig. (143): *A photomicrograph of a high power magnification of the previous section showing a strong reaction in the large serotonin producing cells (E), with groups of 2 cells (arrows)*

(Alkaline diazo Proj. : 10 Obj. : 100).

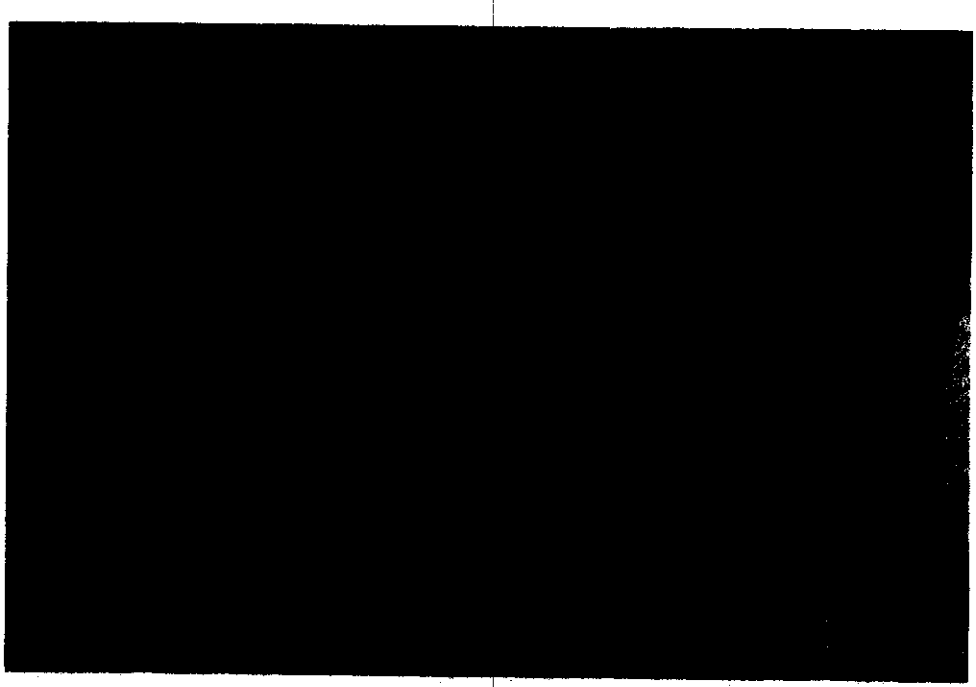

Fig. (144): *A photomicrograph of a section in the duodenum of a rabbit after 6 months of daily oral administration of Larodopa showing a moderate to a strong reaction in the oval - shaped serotonin producing cells. The cells were ,apparently, more increased in number (E).*
(Alkaline diazo Proj : 10 Obj : 40).

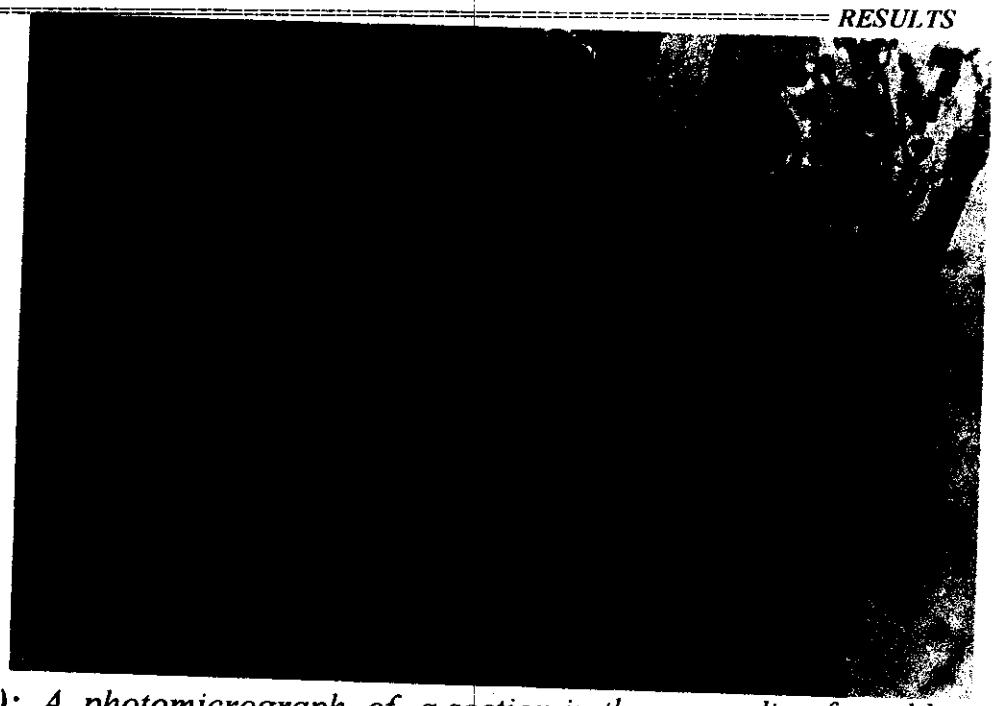

Fig. (146): *A photomicrograph of a section in the appendix of a rabbit after 6 months of daily oral administration of Larodopa showing a moderate to a strong reaction in the serotonin producing cells (E). The cells were more enlarged and ,apparently, more numerous .*

(Alkaline diazo Proj : 10 Obj : 40).

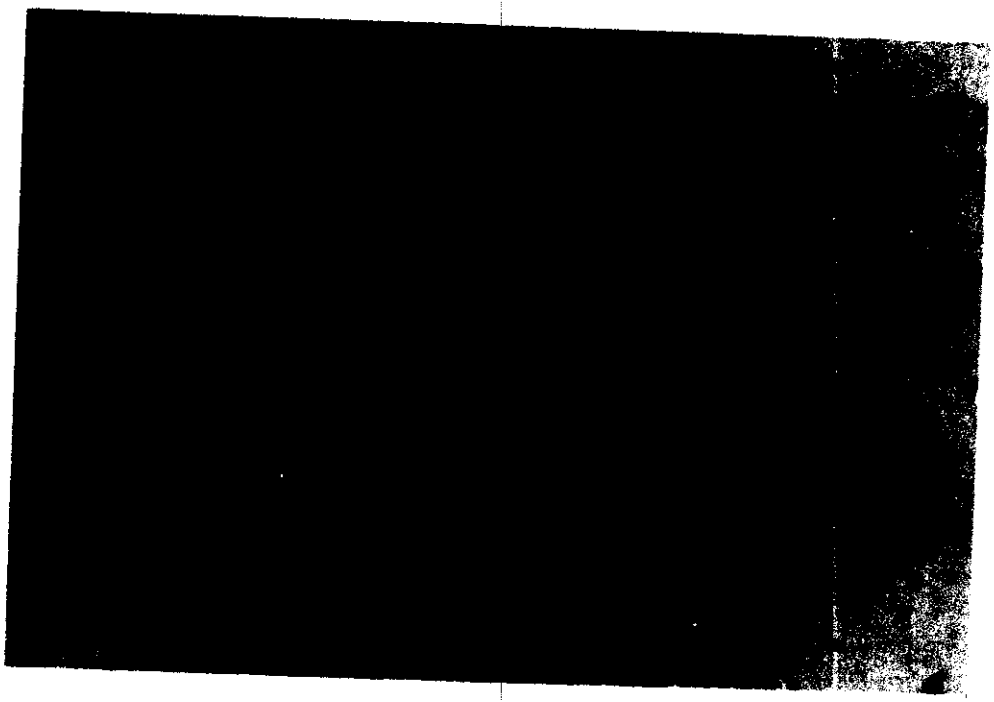

Fig. (147): *A photomicrograph of a high power magnification of the pevious section showing a moderate to a strong reaction in the large, flask-shaped serotonin producing cells (E) with diffuse and basal granules.*

(Alkaline diazo Proj. : 10 Obj. : 100).

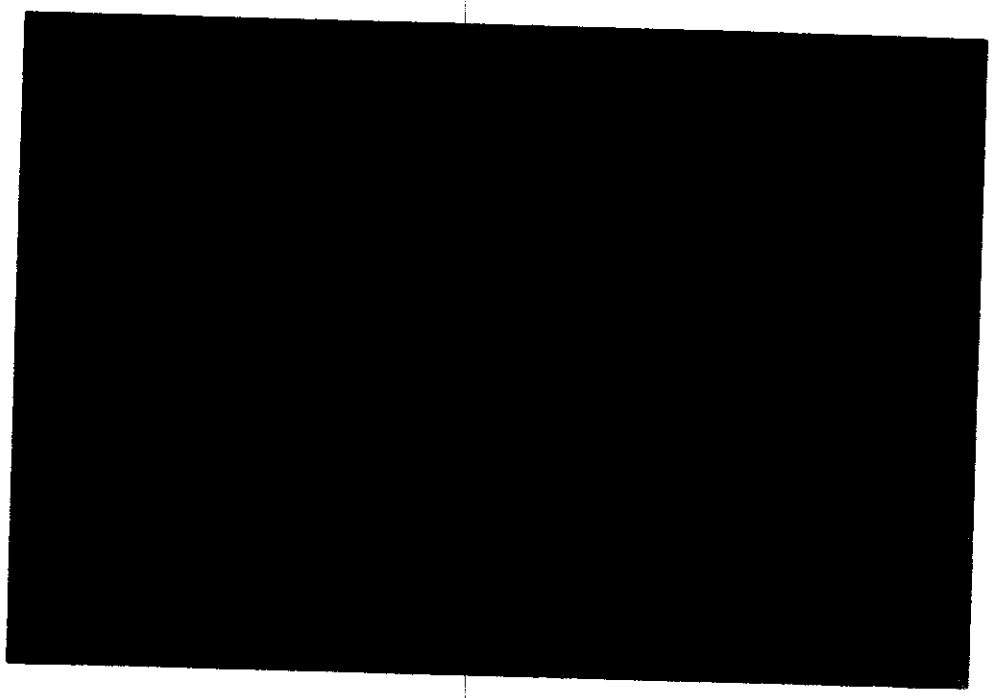

Fig. (148): *A photomicrograph of a section in the colon of a rabbit after 6 months of daily oral administration of Larodopa showing a moderate to a strong reaction in the rounded, oval and triangular - shaped serotonin producing cells (E). The cells were enlarged and ,apparently, numerous.*

(Alkaline diazo Proj : 10 Obj : 40).

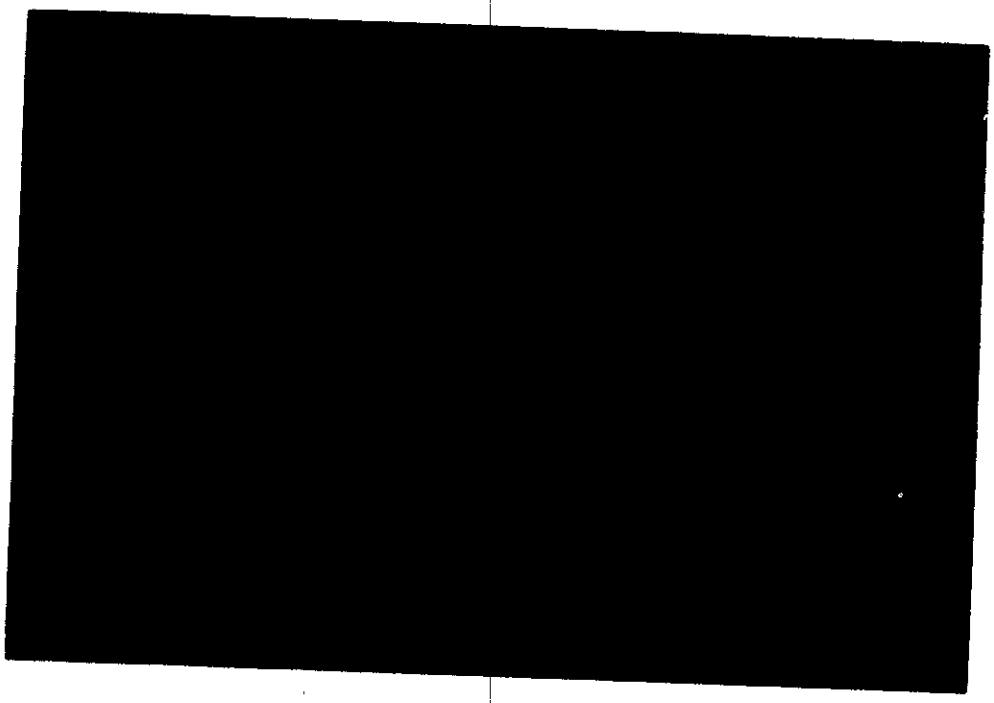

Fig. (149): *A photomicrograph of a section in the rectum of a rabbit after 6 months of daily oral administration of Larodopa showing a moderate to a strong reaction in the oval - shaped serotonin producing cells (E). The cells were ,apparently, more numerous.*

(Alkaline diazo Proj : 10 Obj : 40).

2) Experimental :

a- Stomach :

Adrenaline and noradrenalin producing cells had a strong reaction, more enlarged and ,apparently, more numerous. They were stuffed with dark brown granules (Figs. 150 & 151).

b- Small intestine :

Adrenalin and noradrenalin producing cells had a strong reaction, were more enlarged and ,apparently, more numerous. They were stuffed with dark brown granules (Fig. 152).

c- Appendix:

Adrenalin and noradrenalin producing cells had a strong reaction, more enlarged and ,apparently, more numerous. Groups of 3-4 cells were present (Fig. 153).

d- Colon & Rectum :

Adrenalin and noradrenalin producing cells had a strong reaction, were more enlarged and ,apparently, more numerous. They were stuffed with dark brown granules (Figs. 154, 155 & 156). Groups of 2 - 3 cells were present (Fig. 156).

****PAS lead - Haematoxylin :**

1) Control :

A picture near to that of the previous groups was observed.

2) Experimental :

a- Stomach :

Enteroendocrine (ECL, G & X) cells had a strong reaction, were enlarged and ,apparently, increased in number (Fig. 157). They had dark blue basal cytoplasmic granules.

Fig. (150): *A photomicrograph of a section in the stomach fundus of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the oval and flask-shaped adrenalin and noradrenalin producing cells (E) which were more enlarged and ,apparently, more numerous.*
(Modified chromaffin Proj : 10 Obj : 40).

Fig. (151): *A photomicrograph of a section in the pylorus of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the flask-shaped adrenalin and noradrenalin producing cells which were more enlarged and ,apparently, increased in number.*

(Modified chromaffin Proj : 10 Obj : 40).

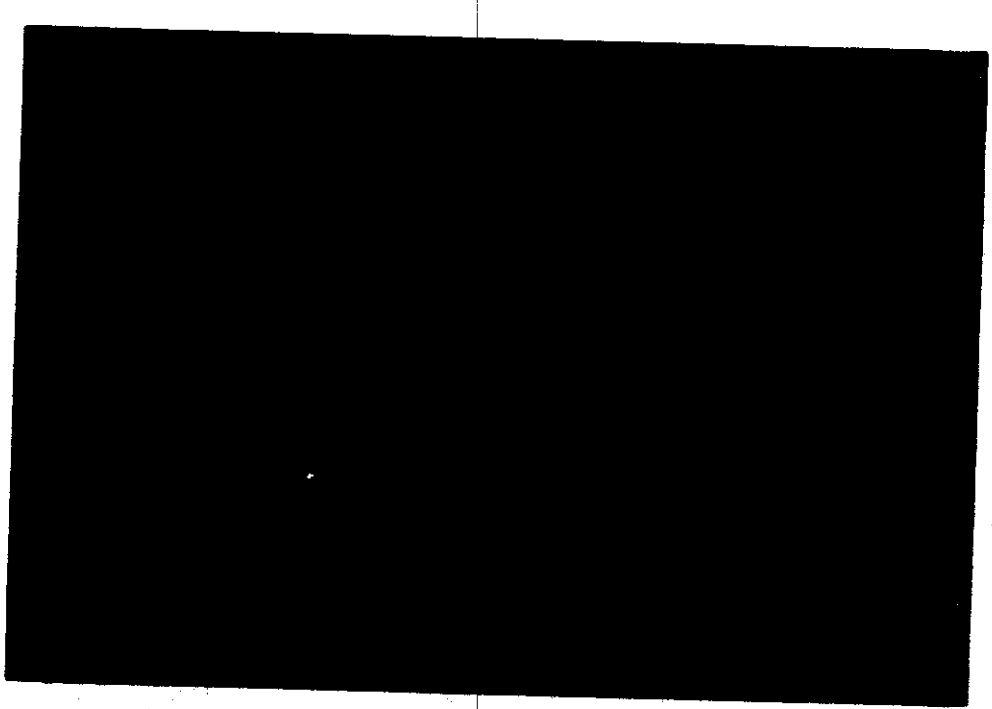

Fig. (152): A photomicrograph of a section in the duodenum of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the flate, oval and flask-shaped adrenalin and nor adrenalin producing cells (E) which were more enlarged and ,apparently, more numerous.
(Modified chromaffin Proj : 10 Obj : 40).

Fig. (155): A photomicrograph of a section in the rectum of a rabbit after 6 months of daily oral administration of Larodopa showing a strong reaction in the adrenalin and noradrenalin producing cells (E). The cells were more enlarged and ,apparently, more numerous. (Modified chromaffin Proj : 10 Obj : 40).

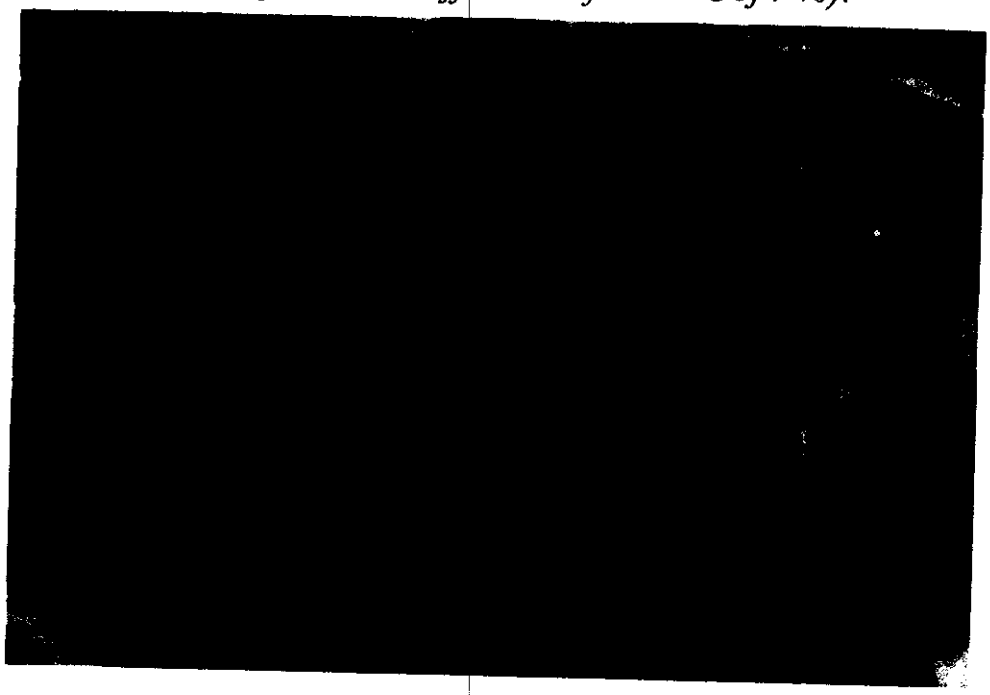

Fig. (156): A photomicrograph of a high power magnification of the previous section showing a strong granular reaction in the large oval - shaped adrenalin and noradrenalin producing cells (E) which were present in groups of 2-3 cells (arrows). (Modified chromaffin Proj. : 10 Obj. : 100).

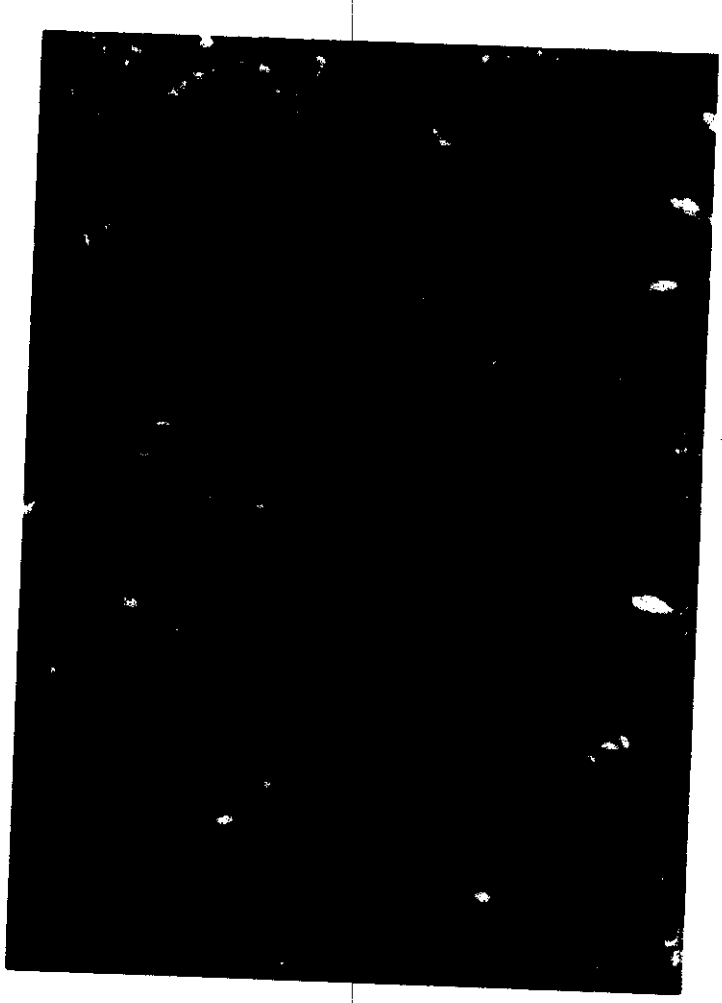

***Fig. (157)** : A photomicrograph of a section in the stomach fundus of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the enteroendocrine cells. The cells were more enlarged and ,apparently, more numerous (E).*

(PAs lead Hx Proj : 10 Obj : 40).

b- Small intestine :

Enteroendocrine (ECL, G & X) cells had a strong reaction more enlarged and ,apparently, more numerous (Fig.158) with dark blue cytoplasmic granules.

c- Appendix :

Enteroendocrine (ECL, G & X) cells had a moderate reaction, were more enlarged and ,apparently, more neumerous (Fig. 159).

d- Colon & Rectum :

Enteroendocrine (ECL, G & X) cells had a strong reaction, were more enlarged with ,apparent, more increase in their number (Figs. 160 & 161). Some cells were stuffed with dark blue cytoplasmic granules.

**** Modified Schofield silver impregnation method :**

1) Control :

- Meissner's & Auerbach's plexuses :

A picture near to that of the provious groups was observed.

2) Experimental :

- Meissner's & Auerbach's plexuses :

The plexuses were more increased in size (Figs. 162 & 163). The cells were more enlarged with an increased reaction.

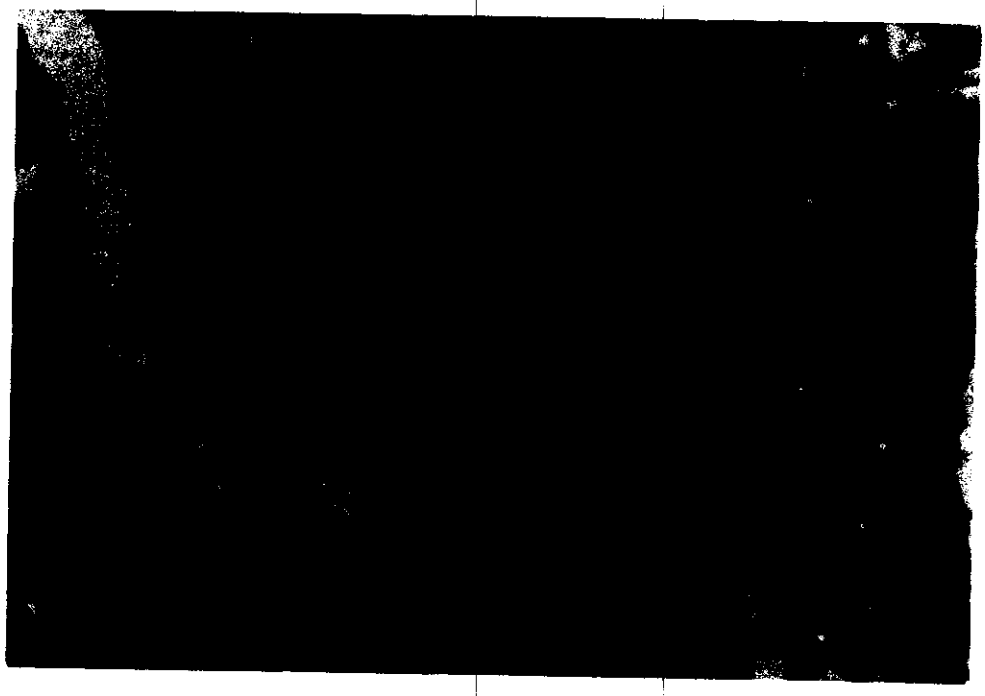

Fig. (158): *A photomicrograph of a section in the duodenum of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the enteroendocrine cells (E). The cells were more enlarged and apparently, more increased in number*

(PAS lead - Hx Proj. : 10 Obj. : 40).

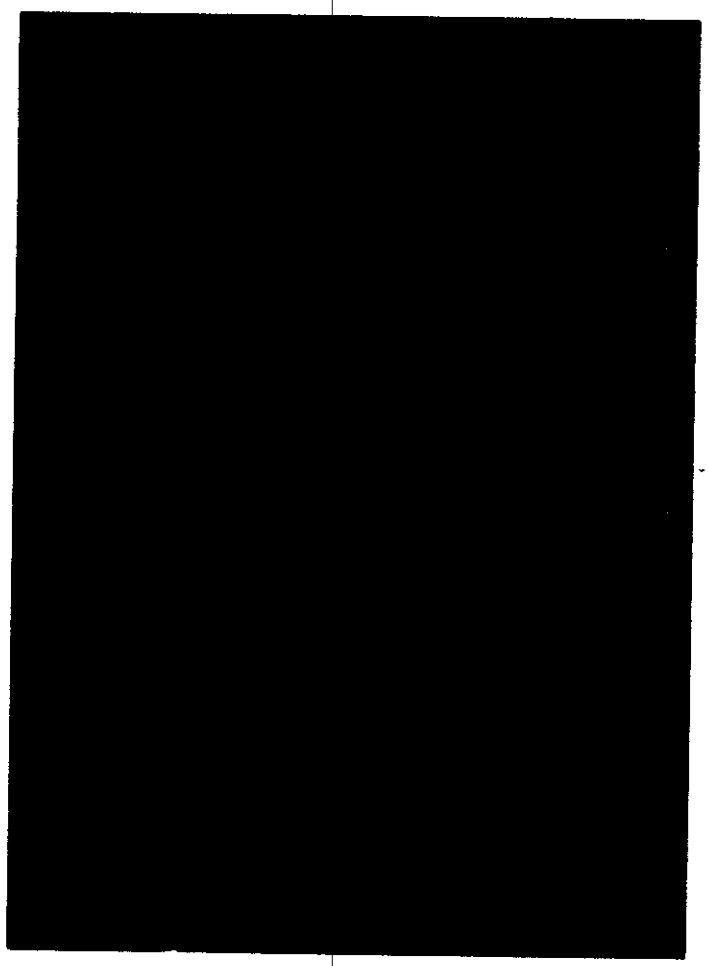

Fig. (159): *A photomicrograph of a section in the appendix of a rabbit after 6 months of daily oral administration of larodopa showing a moderate reaction in the oval - shaped enteroendocrine cells. The cells were more enlarged and ,apparently, more numerous.*

(PAS lead - Hx Proj : 10 Obj : 40).

Fig. (160) : *A photomicrograph of a section in the colon of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the enteroendocrine cells which were ,apparently, more numerous (E).*

(PAS lead - HX Proj : 10 Obj : 40).

Fig. (161): *A photomicrograph of a section in the rectum of a rabbit after 6 months of daily oral administration of larodopa showing a strong reaction in the rounded and flask-shaped enteroendocrine cells (E) which were more enlarged and ,apparently, more numerous.*

(PAS lead - Hx x Proj. 10 Obj. : 40).

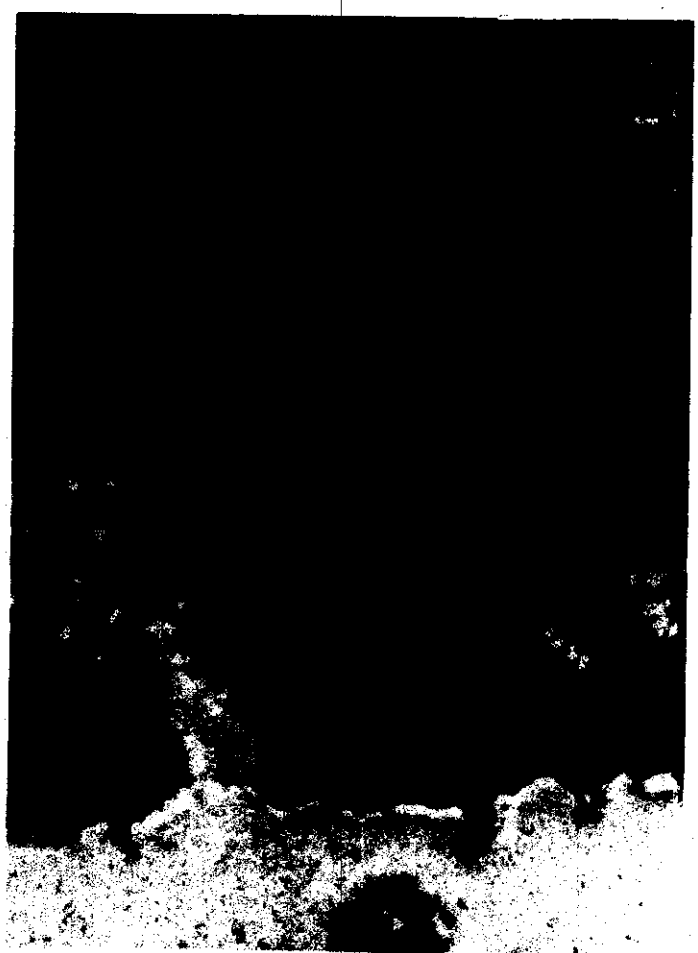

Fig. (162): *A photomicrograph of a section in the duodenum of a rabbit after 6 months of daily oral administration of larodopa showing a larger bundle of Auerbach's plexus with more increased reaction in the ganglion (x) and Schwann (y) cells. (Modified Schofield Proj : 10 Obj : 40).*

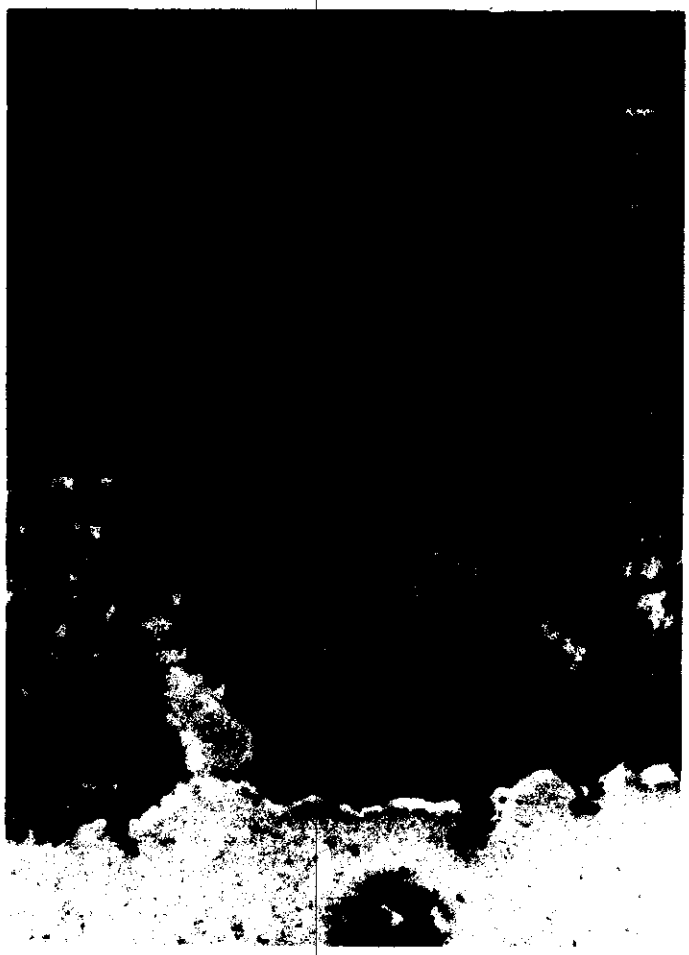

Fig. (162): *A photomicrograph of a section in the duodenum of a rabbit after 6 months of daily oral administration of larodopa showing a larger bundle of Auerbach's plexus with more increased reaction in the ganglion (x) and Schwann (y) cells.*
(Modified Schofield Proj : 10 Obj : 40).

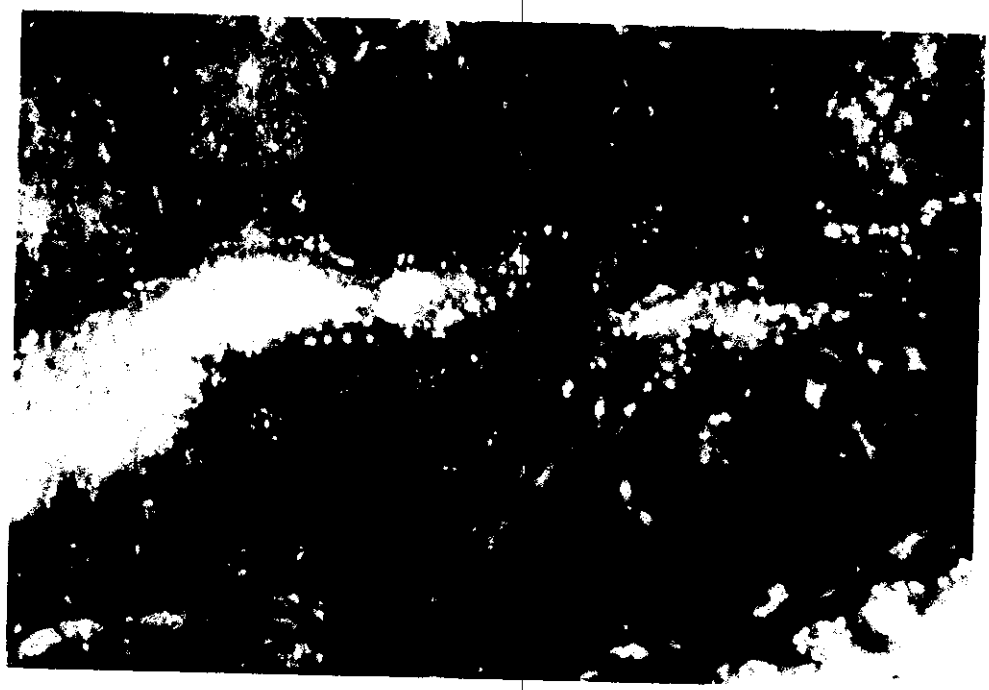

Fig. (163): *Photomicrograph of a section in the duodenum of a rabbit after 6 months of daily oral administration of larodopa showing a larger bundle of Meissner's plexus with more increased reaction in the ganglion (x) and Schwann cell (Y).*
(Modified Schofield Proj : 10 Obj : 40).