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Distribution of alkaline and acid phosphatases in the duodenal wall of native sheep by using different fixatives

N. S. Ahmed

Department of Anatomy, College of Veterinary Medicine, University of Mosul, Mosul, Iraq

Abstract

Ten duodeni of adult ram were fixed in chilled acetone, 80% ethyl alcohol, formol-alcohol solution, alcoholic bouins solution and neutral buffered formalin solution. The distribution of alkaline and acid phosphatases were similar in their location but different in their intensity and distribution according to different fixative. The distribution of alkaline phosphatase in absorptive columnar cell was more intense than in goblet cells, whereas the concentration of acid phosphatase was more intense in goblet cells than in absorptive cells in the mucosa of sheep duodenum. The study revealed that the samples fixed with chilled acetone gave highest reaction for alkaline and acid phosphatases than other fixative samples. No reaction for alkaline phosphatase include the lower parts of intestinal glands, paneth cells and sub mucosal glands in different fixative, whereas, paneth cells and sub mucosal glands revealed wreaked reaction for acid phosphatase in samples fixed in 80% ethyl alcohol and chilled acetone respectively in duodenum of native sheep.

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 () % Alkaline and
 () () acid phosphatase
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 cedar wood oil ()

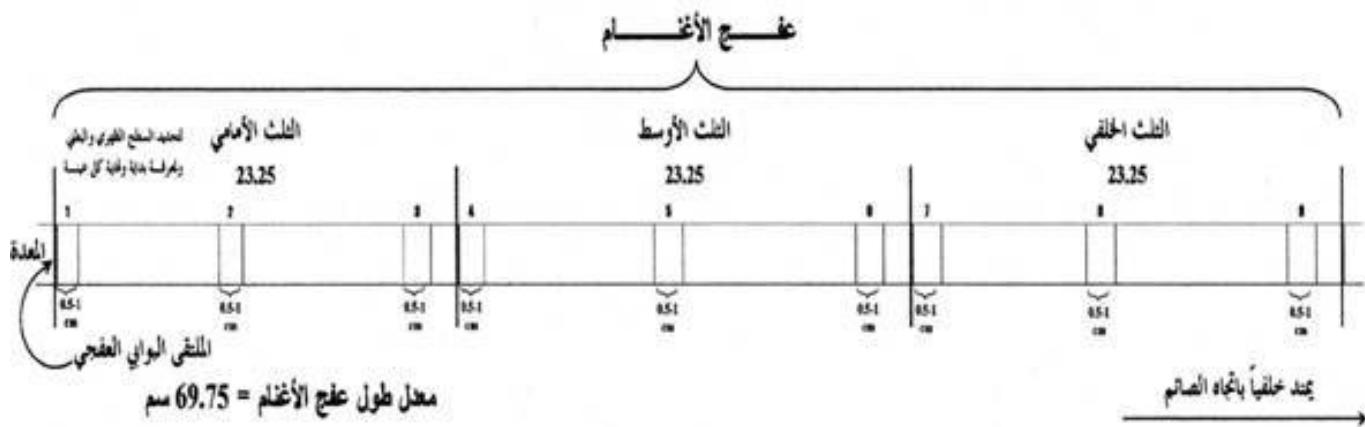
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Nuclear fast red

Calcium phosphate

Gomori's () lead nitrate (method)
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.Substrate () -



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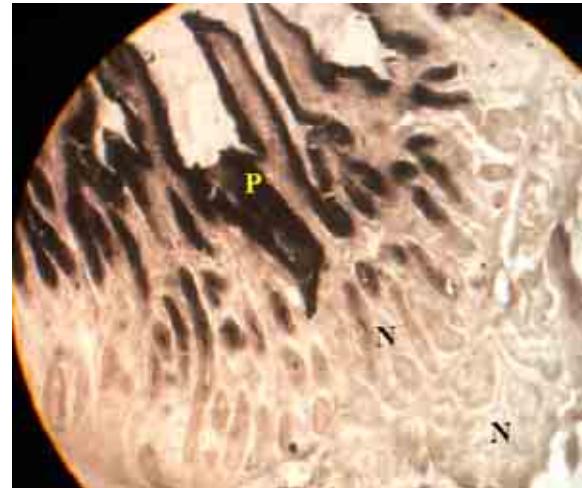
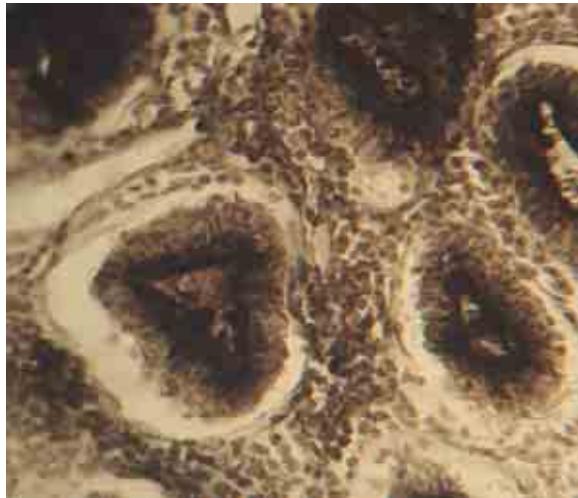
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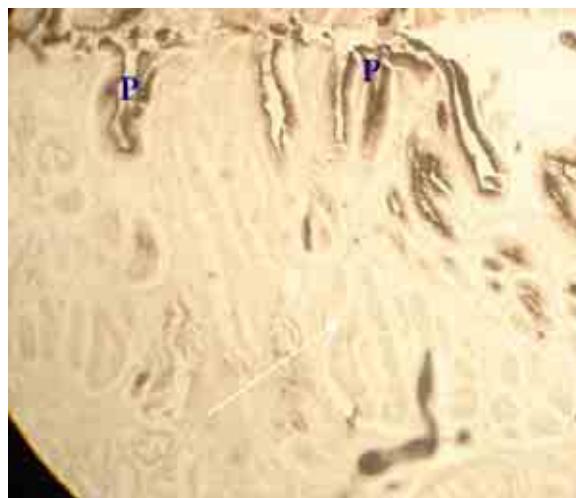
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-	-	++	++	-	-	++	+++	-	-	++	+++	Chilled acetone
-	-	+	++	-	-	+	++	-	-	+	++	Ethyl alcohol 80%
-	-	+	+	-	-	+	++	-	-	+	++	Formol-alcohol
-	-	±	+	-	-	±	+	-	-	±	+	Neutral buffered formalin
-	-	±	±	-	-	±	±+	-	-	±	±+	Bouin's solution
-	-	++	++	±	-	++	++	±	-	++	++	Chilled acetone
-	±	++	+	-	±	++	+	-	±	++	+	Ethyl alcohol 80%
-	-	++	+	-	-	++	+	-	-	++	+	Formol-alcohol
-	-	±	±	-	-	±	±	-	-	±	±	Neutral buffered formalin
-	-	±	±	-	-	±	±	-	-	±	±	Bouin's solution
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.() .370X .



.(N) .60X .



.(N) .70X .

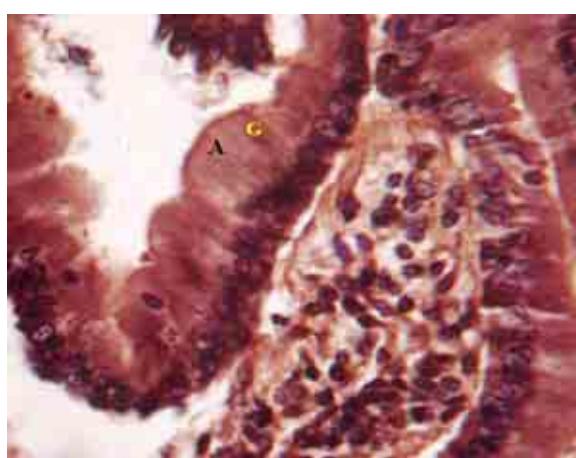
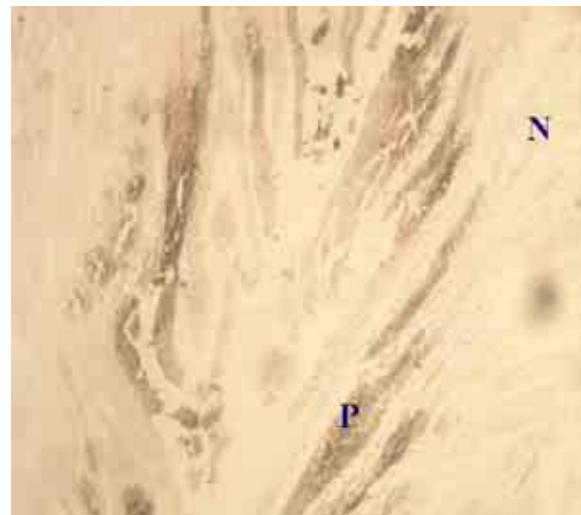
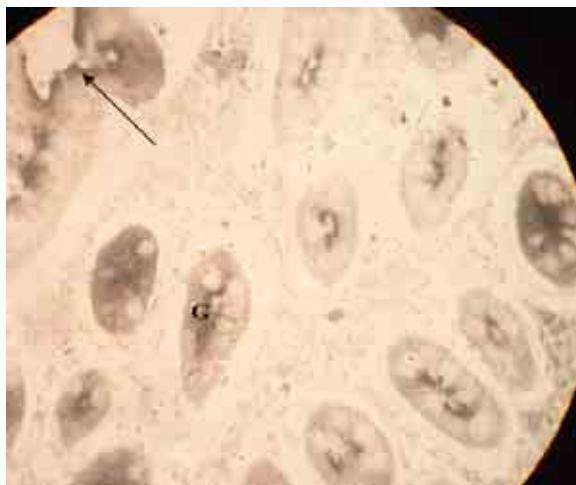
(P) .100X .%

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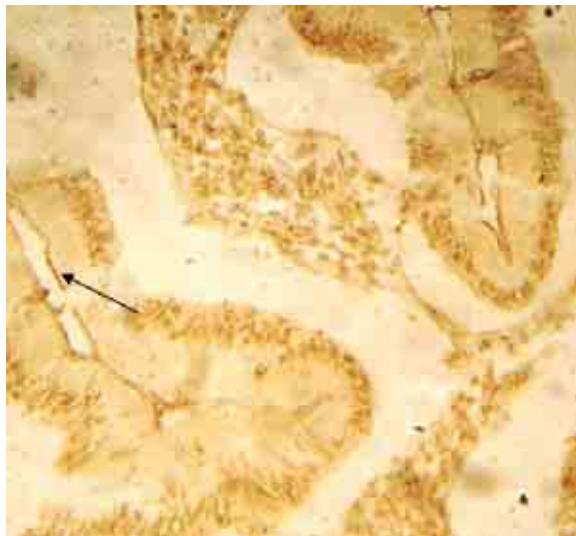
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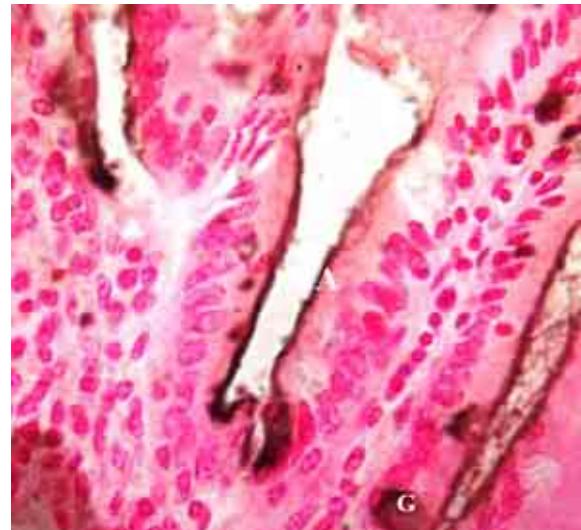
Gomri's (G) (A)
X Iron- hematoxylin

.100X .

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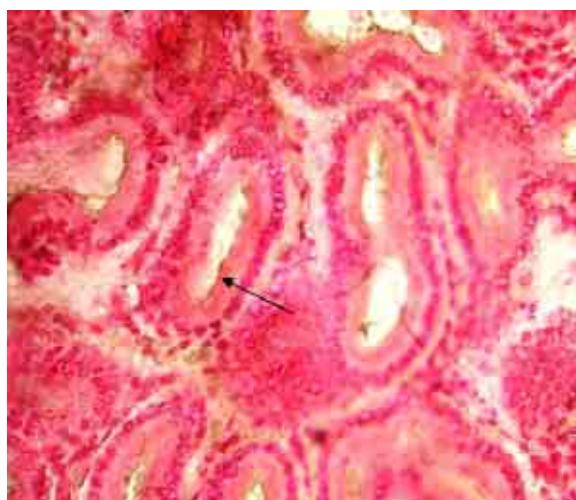
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.()

X .

Gomri's

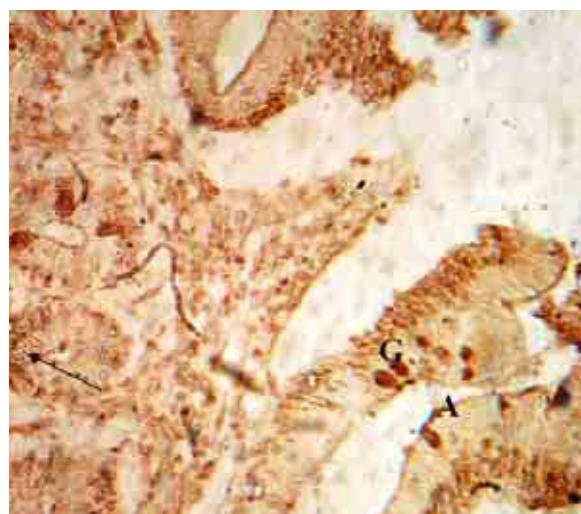


.(G)

X .

(A)

nuclear fast red Gomri's



Gomri's

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X .

nuclear fast red

(G)

Gomri's nuclear fast red

(A)

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X .%

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% () () ()

lysosome enzyme () ()

microflora () () ()

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() () ()

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1. Ahmed NS. Distribution of alkaline and acid phosphatase enzymes in the mucosa in native sheep and goats. Iraqi J Vet Sci. 200;14:19-27.
2. Ahmed NS, Abdul-Raheem MH. Occurrence of alkaline and acid phosphatase enzymes in the omasal mucosa of native sheep and goats. Iraqi J vet Sci. 2003;17:181-187.
3. El-Abdin Yz, Hamza SM. Acid and alkaline phosphatase in normal sheep and camels. J Egyp Vet Med Assoc. 1972;32:247-249.
4. Antonov S. Activities and characteristic of alkaline phosphatase in the organ of cattle and sheep. Veterinarnome Distsinski Nauki 1979;16:41-47 (Abstract 7819).
5. Carlos CR, Morales R. Structural localization of alkaline phosphatase in the intestinal epithelium of bovine with special references to its enzyme activity and electrophoretical properties. Anat Histol Embryol 1980; 3:193-288, 198-208.
6. Humason Gl. Animal tissue technique 3rd ed. Sanfrancisco:WH Freeman and Co.;1972.429-435.
7. Drury RA, Wallington EA, Cameron SR. Carletons histological technique 5th ed. London: Oxford University Press;1980. 242-244.
8. Micheal E, Hodges RD. 1. Structure and histochemistry of normal intestine of the foal. 2. Distribution of enzyme activities in the duodenal and jejunal mucosa. Histo Chem J. 1974;6:133-145.
9. Saini PK, Saini SK. Immunochemical study of canine intestinal, hepatic, osseous alkaline phosphatase. Am J Vet Res. 1978;39:1506-1509.
10. Morizona M, Kita T, Nishiyama S. Clinical studies on serum alkaline phosphatase in domestic animals. 1. Measurement of total alkaline phosphatase activity in domestic animals. 2. Detection of isoenzymes of serum alkaline phosphatase in domestic animals. Bullein of the Faculty of Agriculture Kogoshima University 1976;26:95-103, 102-105.
11. Dellmann Hd, Brown EM. Text book of veterinary histology. 2nd ed Philadelphia: Lea and Fibigre ; 1976. 56.
12. Abdul-Raheem MH, Mohialdeen KA. Effect of various fixative and temperature on alkaline phosphatase reaction. Ann Coll Med Mosul 1976;7:59-66.
13. Healy PJ. Serum alkaline phosphatase in sheep. Austra J of Expereimental Biol Med Sci. 1974; 52: 375-385.
14. Shannon AD, Quin JW, Courtice FS. Lysosomal enzyme activity in sheep plasma and lymph. Res Vet Sci. 1977;22:209-215.
15. Junqueria LC, Carneiro J. Basic histology and atlas 11th ed. New York: McGraw-Hill Medical publishing division; 2005. 16.
16. Samuelson DA. Text book of veterinary histology 9th ed. China: Saunders an Imprint of Elsevier Inc; 2007. 21-24.