Histochemical Changes of Small Intestine of Indigenous Piglets of Assam During Pre-Weaning Period

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SUMMARY

The present investigation on histochemical reactivity of SDH, LDH, MDH, MAO, CYO, ATPase of indigenous piglets of Assam during pre-weaning period was found to be intense at the surface epithelium and being weak at glandular epithelium in piglets of all age groups. Further, the intensity was more at the apical border of the cells than the basal border.

Key words: Histochemical changes, Piglets, Pre-weaning period, Small intestine

The gut is to absorb the nutrients as well as to provide protection against all pathogens, toxins and different antigens. Hence, the present study was undertaken to understand the alteration of the histochemical changes of the small intestine of indigenous piglets of Assam during pre-weaning period.

Thirty indigenous, pre-weaning apparently healthy piglets of five different age groups, viz. group I (0-6 days), group II (7-13 days), group III (14-21 days), group IV (28-35 days) and group V (49-56 days) were used in this study. The tissue samples from the various parts, viz. duodenum, jejunum and ileum were collected as soon as possible after exsanguination of the piglets and preserved in liquid nitrogen (-196°C) in a cryocan. The sectioning of these tissue samples were carried out in between -15° to -25°C. The cryo-sections of 5-10 μ were incubated with substrates of the definite enzymes, viz. succinate dehydrogenase (SDH), lactate dehydrogenase (LDH), malate dehydrogenase (MDH), monoamino oxidase (MAO), cytochrome oxidase (CYO), adenosine triphosphatase (ATPase) and alkaline phosphatase (AKPase) inside the incubator at 37°C (Pearse, 1980).

The present observations revealed that all these enzymes were present in all the age groups under study (Table 1). However, the intensity of enzymes was more in lamina epithelialis mucosae than the glandular epithelium. Further, it was found that the intensity was more in the apical border of the epithelium than the basal border (Figs. 1, 2).

![Figs. 1-2. Photomicrograph showing LDH reaction in duodenum of indigenous piglets of Assam during 12 days pre-weaning period. × 100](image1)

![Figs. 3-4. Photomicrograph showing SDH reaction in jejunum of indigenous piglets of Assam during 36 days pre-weaning period. × 100](image2)

In the present study, the histochemical reactivity for LDH, SDH, MDH, MAO, CYO, ATPase was observed strong in the surface epithelium than that of glandular...
Table 1. The activities of various enzymes in the small intestine of pre-weaning indigenous piglets (age group I-V) of Assam

<table>
<thead>
<tr>
<th>Enzyme</th>
<th>Duodenum</th>
<th>Jejunum</th>
<th>Ileum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LEM GE</td>
<td>LEM GE</td>
<td>LEM GE</td>
</tr>
<tr>
<td>M D H</td>
<td>+++ ++</td>
<td>+++ ++</td>
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<tr>
<td>M A O</td>
<td>+++ ++</td>
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<tr>
<td>ATPase</td>
<td>+++ ++</td>
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<tr>
<td>LDH</td>
<td>+++ ++</td>
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<td>+++ ++</td>
</tr>
<tr>
<td>CY O</td>
<td>+++ ++</td>
<td>+++ ++</td>
<td>+++ ++</td>
</tr>
<tr>
<td>SDH</td>
<td>+++ ++</td>
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</tr>
</tbody>
</table>

LEM = Lamina epithelialis mucosae; GE = Glandular epithelium

Intensity of neutral mucosubstances was observed moderate in the small intestine as reported by Sheahan and Jervis (1976) in gastric mucosa.

REFERENCES


