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INFLUENCE OF DIFFERENT FOOD POLLUTANTS ON STRUCTURAL CHANGES IN OAK DEVELOPMENT

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Abstract: This article examines the effects of various contaminants on the activity of digestive enzymes, including disaccharides, as well as helps to understand the etiology and pathology of the dis ease in various food intoxications, as well as to identify adequate treatment options.
Keywords: contaminant, postnatal period, mucosa, experiment, villi, intoxication.

Introduction

Relevance of the topic. The negative ef fects of food, environmental pollution and the " anthropogenization" of food, that is, physical a nd chemical processing, lead to a departure fro m natural forms [1]. This problem is especially relevant for digestive enzymes, since digestive enzymes are the most important factors that ad apt the body to various factors, including the c hemical composition of food. Therefore, it is o f scientific and practical importance to study th e effect of various additives on the production a nd digestion of food products due to environme ntal pollution [2]. These data indicate that food is contaminated with xenobiotics in the environ ment or "enriched" with various "additives", " modern" chronic fatigue, Alzheimer's disease, s chizophrenia, cancer, diabetes, the endocrine s ystem of the cardiovascular system, nerves, kid neys and especially lie at the heart of gastrointe stinal diseases. The sad fact is that the list of fo od contaminants is huge and growing.

Objectives: to study the effect of some f ood contaminants on a growing organism: histo logical parameters of the intestine and the activ ity of intestinal disaccharides.

Materials and methods. For the experim ents, white rats were taken from the Tashkent Z oo and kept in separate plastic cages 50x30x28 cm in size in the vivarium of the Biological Fa culty of the National University of Uzbekistan at the Department of Physiology and Neurobio logy. The temperature in the room in which the rats were kept was 20-25°C, and the relative hu midity was 40-60%. The lighting mode was na tural. The date of birth was recorded as 0, and t he growing rats were kept in separate cages wit h their mother until the end of the observation p eriod. The diet of the animals was a standard v ariable diet. The rats were not restricted in feed ing or drinking water. The experiments were ca rried out on growing rats. On the 15th, 17th an d 18th days of postnatal life, the rats were give n contaminated foods, such as antibiotics - tetr acycline (80 mg / kg), as well as taste-altering a dditives - monosodium glutamate (80 mg / kg), and antidotes as corrective agents for 7 days. A few days after the intake, the pectin and food s upplement curcumin were dispatched. In the co urse of the experiments, along with the morpho metric parameters of the digestive tract, sample s of the mucous membrane of the small intestin e for microscopy, the activity of enteric enzym es (maltase, sucrose and lactase) was determine d.

Results. The histostructural effects of v arious food contaminants in rat intestines are s hown in the figure.

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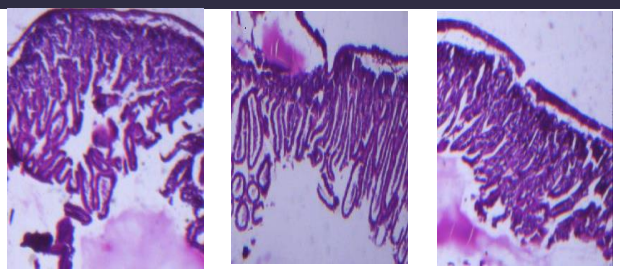

The control **Tetracycline** **Monosodium Glutamate**

Figure 1. The effect of various food contaminants on the intestinal microstructure. Hematoxylin-eosin dye.

The activity of maltase and sucrose as intestinal α-glucosidases was considered as an example, the activity of lactase as β-glucosidase activity. (*Table 1. Maltase.*) In 21-day-old rats, that is, rats switching from a mixed diet to an independent diet, the specific activity of maltase was well expressed with a protein content of 281.4 ± 11.5 μmol/min/g. Under the influence of tetracycline, the enzyme activity increased by 123.8% (P = 0.05), and under the influence of sodium glutamate, the specific activity of the enzyme did not change. The activity of this enzyme was 20.4 ± 1.3 μmol/min/g of protein in the control group of rats.

Table 1. Influence of some food contaminants on the relative activity of intestinal disaccharidases in rats (μmol/min/g protein; M ± m, n = 5)

Fermentation	The control		Monosodium glutamate		Tetratcycline	
	M±m	%	M±m	%	M±m	%
Maltase P	281.4±11.5	100	304.7 ±17.1 >0.25	111.2	348.4±23.9 <0.05	123.8
Sucrose P	20.4±1.3	100.0	34.2±3.3 <0.02	148.0	34.1±2.1 <0.001	167.2
Lactose P	28.8±1.3	100	22.4±1.6 >0.25	91.4	19.3±1.6 <0.001	69.4

Conclusion. Under the influence of food contaminants - sodium glutamate and tetracyclines, changes in the histological structure of the intestine are observed. These changes were expressed in the extrusion of villi, epithelial cells (monosodium glutamate) and malnutrition of microvilli (tetracycline). Monosodium glutamate and tetracyclines increase the activity of enteral α-glucosidases (maltase and sucrose). Based on an increase in the activity of maltase and sucrose, the activity of b-galactosidase, that is, lactase, does not change under the action of sodium glutamate, under the influence of tetracycline, and vice versa decreases.

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