## ABSTRACT

### Histological Determination of Embryotoxic Effects of Food Additive Sodium Benzoate on Chicken Embryonic Development

Feryal KARAKAHYA

M. Sc. Thesis, Department of Biology
Supervisor: Assoc. Prof. Dr. Yücel BAŞIMOĞLU KOCA
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In this study, possible embryotoxic effects of sodium benzoate (E211), which is used as a food additive, on the liver tissue of chicken embryo, which were exposed to it in different doses and time were determined histologically. Three different doses of sodium benzoate were injected into yolk on the 5$^{th}$ day of the incubation. Some of the eggs of control and experimental groups were opened on the 7 $^{th}$ day and others on the 10$^{th}$ day and embryos were taken out. The embryos were prepared according to rouitine histological procedure. Then, the paraffin blocks of the embryos were sectioned and stained. Preparations were examined histopathologically, findings determined as significant were photographed.

As a result of the statistical assessment, it was determined that sodium benzoate caused a significant decrease in the total weights of the embryos, depending on the dose and time. ($p<0,001$). In microscope level, deterioration in the structure of the veins, congestion, oedema, enlargement in sinusoids, deterioration in hepatosit regulations, swelling, vacuolization, chromatin condensation, karyolysis, eccentric locate and deformity of the nucleus, decrease in Nucleolar Organizer Regions (NOR) and mitotic division, chromosomes adhesion, lagging chromosome, budding nuclei, and micronucleus formation were observed.

It was decided that Sodium Benzoate is genotoxic and embryotoxic, based on the growth retardation in chicken embryos and histological changes in the liver which has extremely significant metabolic functions.



**Key Words:** Sodium benzoate, chicken embryo, liver, embryotoxic, histology.