

180-day toxicological research of GM soybean line MON87701×MON89788: The results of morphological examination (#69)

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Content

As a part of the state registration of GM soybean line MON87701×MON89788 in the Russian Federation, a comprehensive safety assessment was conducted, which included chronic toxicological research on rats in vivo. This article presents the results of morphological examination of internal organs of rats that consumed GM soybean for 180 days.

During this study organs of 32 Wistar rats were examined (16 in the control and test groups each). The rats were subjected to euthanasia by decapitation. Microscopic examination of internal organs was conducted at the time of autopsy: both groups showed no pathological changes and anatomically correct organ structure of typical sizes and forms, chest cavity and abdominal cavity position of organs was in the norm, the capsules, mucous membranes and serous membranes were moist, smooth and shiny, without focal changes, of a tightly elastic consistency, lymph nodes were not enlarged, lungs were airy to the touch, freely lying in the pleural cavity, pleurodiaphragmatic adhesions were absent.

Thymus, heart, lungs, liver, kidneys, adrenals, spleen, small intestine, testicles, prostate gland were histologically investigated. Organs were fixed in 10% formalin solution, preparations stained with hematoxiline-eosin and van Gieson's stain. Histological preparations were assessed in light microscope AxioImager Zl. Morphometry was performed with AxioVision 4.8.

Histological structure of the investigated organs showed no deviations. No pathological changes in tissue structure or endemic hemorrhage have been detected. Morphometric analysis of the liver, kidneys, spleen structure showed no differences between the groups: for control and test groups the average values of diameters of the renal glomeruli, the renal proximal tubules, the lumen of renal proximal tubules were $96,32 \pm 1,07$ and $95,25 \pm 1,14$ μm ; $29,01 \pm 0,39$ and $28,16 \pm 0,44$ μm , $17,23 \pm 0,56$ and $16,95 \pm 0,57$ μm , respectively; the diameters of the white pulp of the spleen were $288,11 \pm 4,1$ and $284,46 \pm 3,95$ μm ; the diameters of the hepatocytes were $13,85 \pm 0,43$ and $13,04 \pm 0,34$ μm .

Results of the morphological examination, together with hematological and biochemical examination, diagnosis of antioxidant status and monooxygenase system enzymes' activity in the liver, did not reveal any toxic effect of GM soybean line MON87701×MON89788 in comparison with its traditional counterpart.

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