

Biosafety Study of Genetically Modified CEMB Sugarcane on Animals for Glyphosate Tolerance

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Abstract : Risk assessment of transgenic herbicide tolerant sugarcane having CEMB codon optimized cp4EPSPS gene was done in present study. Fifteen days old chicks taken from K&Ns Company were randomly assorted into four groups with eight chicks in each group namely control chicken group fed with commercial diet, non-transgenic group fed with non-experimental sugarcane and transgenic group fed with transgenic sugarcane with minimum and maximum level. Body weights, biochemical analysis for Urea, alkaline phosphatase, alanine transferase, aspartate transferase, creatinine and bilirubin determination and histological examination of chicks fed with four types of feed was taken at fifteen days interval and no significant difference was observed in body weight biochemical and histological studies of all four groups. Protein isolated from the serum sample was analyzed through dipstick and SDS-PAGE, showing the absence of transgene protein in the serum sample of control and experimental groups. Moreover the amplification of cp4EPSPS gene with gene specific primers of DNA isolated from chicks blood and also from commercial diet was done to determine the presence and mobility of any nucleotide fragment of the transgene in/from feed and no amplification was obtained in feed as well as in blood extracted DNA of any group. Also no mRNA expression of cp4EPSPS gene was obtained in any tissue of four groups of chicks. From the results it is clear that there is no deleterious or harmful effect of the CEMB codon optimized transgenic cp4EPSPS sugarcane on the chicks health.

Keywords : chicks, cp4EPSPS, glyphosate, sugarcane

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