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Environmental risk assessment of genetically modified herbicide-resistant Zoysiagrass (*Zoysia japonica* Steud.)

Tae-Woong Bae, Satoshi Nishiguchi, Enkhchimeg Vanjildorj, Chang-Hyu Bae[2], Shin-Young Park[3], Pil-Yong Yun[4], Kye-Zung Riu, Song-Sook Yang[1], Ok-Jin Hwang[1], Jeong-Il Kim[1], Pill-Soon Song[1] and Hyo-Yeon Lee*

College of Applied Life Science, Cheju National University, Jeju 690-756,
[1]Kumho Life and Environmental Science Laboratory, Gwangju 500-712,
[2]School of Plant Production Science, Sunchon National University, Sunchon 540-742, and
[3]Dept. of Clinical Pathology, Cheju Halla College, Jeju 690-708,
[4]Jeju Hi-Tech Industry Development Institute, Jeju 690-121, Korea.

Objectives

The aim of our study was to get governmental approval of GMO zoysiagrass. Experiments were done according to the Ministry of Agriculture and Forestry (MAF) has notified guidelines (Notification # 2002-2). In these assessments between non-transgenic and transgenic zoysiagrass, substantial equivalence, cross fertilization, gene flow, occurrence of allergy, and studies of non-target biota in confined and unconfined test fields for environmental safety, were included.

Materials and Methods

Material: Plant - Wild-type zoysiagrass (*Zoysia japonica* Sted., Z. cinica, *Z. matrella*) and transgenic zoysiagrass, other grasses and weeds

Methods: Experimental plot design (CRD and RCBD), molecular analysis (RCR), trial of herbicide (BASTA)

Results and Discussion

In these assessments between non-transgenic and transgenic zoysiagrass, substantialequivalence, cross fertilization, gene flow, occurrence of allergy, and studies of non-target biota in confined and unconfined test fields for environmental safety, were included. For substantial equivalence, there was no difference between transgenic and non-transgenic species. To assess cross-fertilization and gene flow, a non-selective herbicide, bialaphos, was used. The results showed that, cross-fertilization and gene flow was not identified in GM zoysiagrass when grown with weed plants, but they were occurred in wild-type zoysiagrass (Average 6%- the distance was 0, average 1%- the distance was 50cm). In the present, the experiments are going on with skin test for allergic reaction using grass pollen extracts and another experiments are carrying out for the safety assessment of non-target biota such as insects. In this study, we discussed the methods and results of the environmental risk assessments that has been performed during last 3 years.

* *Corresponding author* : Hyo-Yeon Lee, TEL: 064-754-2126, E-mail: hyoyeon@cheju. ac.kr