Selection and Characterization of a Novel Glyphosate Tolerant Upland Cotton (*Gossypium hirsutum* L.) Mutant (R1098)

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Stepwise selection approach was adopted to obtain glyphosate-tolerant upland cotton mutant (R1098) from the embryogenic calli of Coker 312 (*Gossypium hirsutum* L.). The calli were transferred to selection medium and multi-step selection pressure process was carried out until the calli could proliferate in the presence of 20 mol $\cdot$ L^{-1} glyphosate. The regenerated plantlets from the glyphosate-tolerant calli were analyzed for glyphosate bioassay, progeny testing and shikimate accumulation on whole-plant bases. Based on a dose-dependent response bioassay, R1098 could tolerate 1. 48 kg ae per hectare glyphosate. Progeny tests demonstrated that glyphosate tolerance trait was controlled by one dominant gene. Shikimate accumulation assay showed that significantly different amount of the shikimate content was present between mutant line (R1098) and its wild-type parent (Coker 312) after glyphosate treatment. This indicates that in R1098 line possessing sufficient EPSPS activity leads to maintain normal carbon flow through the shikimate pathway. Moreover, R1098 line offers a greater potential to improve the weed control system in cotton production.