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Metabolism of a New Herbicide Metamifop in RatsH.W.Park¹, J.K.Moon¹, H.Choi¹, H.S.Lee², K.H.Liu³ and J.H.Kim¹¹*School of Agricultural Biotechnology, Seoul National University, San 56-1, Sillim-dong, Gwanak-gu 151-742*²*College of Pharmacy, Wonkwang University, 344-2, Shinyong-dong, Iksan Chonbuk 570-749*³*College of Medicine, Inje University, Busan 614-735*

Metamifop is a new herbicide developed by Dongbu Hannong Chem., and was found to be very effective against paddy and upland grass weeds.

From *in vitro* study with human, rat and mouse liver microsomes, six from eleven metabolites were identified by LC-MS. They were N-(2-Fluoro-phenyl)-2-(4-methoxy-phenoxy)-N-methyl-propionamide (M1), 6-chloro-3H-benzooxazol-2-one (M2), N-(2-Fluoro-phenyl)-2-(4-hydroxy-phenoxy)-N-methyl-propionamide (M3), 2-(Fluoro-phenyl)-2-(4-hydroxyl-phenoxy)-propionamide (M4), 2-[4-(6-Chloro-benzooxazol-2-yloxy)-phenoxy]-propionic acid (M5) and 2-[4-(6-Chloro-benzooxazol-2-yloxy)-phenoxy]-N-(2-fluoro-phenyl)-propionamide (M6). M1, M2, M3, and M5 were common metabolites in three types of microsomal reactions. M4 and M6 were unique in human microsomal reaction.

As *in vivo* study, the metabolism using [¹⁴C]metamifop was examined after single oral administration at dose of 100 mg/kg in male Sprague-Dawley rat. The average mass balance of the study over 168 h was 97.1 %. Excretion through the urine and feces were 78.6 % and 18.3 %, respectively. Elimination as volatile products or carbon dioxide was negligible. Only 0.18 % of radioactivity remained in tissues.

Keyword : metamifop, metabolism, herbicide, mass balance, microsomes, urine, feces.