Deutscher Tropentag, October 11-13, 2005, Hohenheim

"The Global Food & Product Chain—
Dynamics, Innovations, Conflicts, Strategies"

Specific Isozyme Pattern of Rice Seed Cv. Kaodawkmali 105 and Cv. Chainat 1

Kanokwan Kaewmala[1], Supamit Mekchay[1], Sangtiwa Suriyong[1], Elke Pawelzik[2], Suchada Vearasilp[1]

[1] *Chiang Mai University, Department of Agronomy, Thailand*
[2] *Georg-August-University Göttingen, Institute of Agricultural Chemistry, Germany*

Abstract

Genetic purity of rice seed is one of the factors for good quality rice seed production. Using mixed rice seeds has been practised recently by Thai seed farmers, since the mixed seeds used are bought from local traders. Mixed seeds from rice var. KDML 105 which is more expensive then var. CN 1 is most commonly practised. The use of mixed seeds is heavily increased because the traders are lowering the seed price and the morphological appearance of both mentioned varieties is almost the same. Therefore, the international rice trading agencies in Thailand have brought up this problem into public discussion. The purpose of this experiment was to find out a better and cheaper way then well-known expensive laboratory analysis techniques e.g. DNA fingerprint, to identify varieties. Such a simpler and quicker method could be a specific isozyme electrophoresis.

The determination of the specific isozyme patterns of rice seed cv. KDML 105 and CN1 was done by using the method of polyacrylamide gel electrophoresis technique (PAGE). Five enzymes; esterase (EST), glutamate oxaloacetate trasaminase (GOT), leucine amino peptidase (LAP), malic enzyme (ME) and malate dehydrogenase (MDH) were assayed. It was found that the esterase enzyme show distinguished differences for these two rice seeds cvs. No distinguished differences of the isozyme pattern in other enzymatic patterns were found.

Thus, esterase enzyme electrophoresis technique could be used to separate the rice seed mixture of var. KDML 105 and CN1. Further research is recommended.

Keywords: Polyacrylamide gel electrophoresis, rice seed, specific isozyme pattern, technique

Contact Address: Sangtiwa Suriyong, Chiang Mai University, Department of Agronomy, Huay Kaew Road, 50200 Chiang Mai, Thailand, e-mail: sangtiwa@chiangmai.ac.th