Tanyamart Niyomyard 2009: Seed Purity Testing and Varietal Identification of Certain Oil Crops using Ultrathin-layer Isoelectric Focusing. Master of Science (Agriculture), Major Field: Agronomy, Department of Agronomy. Thesis Advisor: Associate Professor Sontichai Chanprame, Ph.D. 51 pages.

Varietal identification of 4 sunflower, 6 groundnut and 2 sesame varieties using ultrathin-layer isoelectric focusing (UTLIEF) was carried out. The objective of this study was to determine the suitable sovents for seed purity testing and varietal identification of sunflower, groundnut and sesame and to determine the least quantity of seeds needed for varieties testing. Three different sovents, water, 4 M urea and 3.8 mM phosphate buffer, were tested. The extracted seed storage proteins were separated in polyacrylamide gel with a pH-gradient of the matrix ranges from 2-9 at 8°C with 2500 v. It was found that water was the most suitable sovent for seed storage protein extraction and identification in sunflower and sesame. In groundnut, all three tested sovents did not show the different between the varieties tested. For hybrid seed purity testing, it was found that water was the most suitable sovent for seed storage protein extraction and identification in sunflower and sesame. The various portions of endosperm 1/2 1/3 and 1/4 were used for sunflower variety identification. The results showed that half-seed endosperm yielded the best protein bands pattern followed by the 1/3 and 1/4 of seed, respectively. It was also found that at least 6 seeds of sesame were needed for varietal identification.

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