E125 Defense Mechanism of Glandular Trichome of *Solanum tuberosum* against *Myzeus persicae*(Homoptera: Aphididae)

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This study was carried out to investigate the effects of glandular trichomes, known as an important factor in plant resistance to insects, of a wild species of potato, *Solanum tuberosum* cv. *Dejima*, on development of the aphid, *Myzeus persicae*. There are two types of glandular trichomes on the foliage of *Solanum tuberosum*. Type I is a long trichome(125.8±7.0*u*m in length) with four-lobed membrane-bound gland(50.0±0.0*u*m in width) at its apex which exudes a clear viscous exudate and its density is 8.38±1.59/mm^2. Type II is a shorter, simple trichome with an ovoid gland at its tip. When methanol extracts of glandular trichome applied to the nymphs and adults of *Myzeus persicae*, a normal development of the aphids was greatly inhibited. The relevance of defense mechanism of potato resistance to insect pests will be discussed.

E201 Characterization of Chitinases from Rice (*Oryza sativa* L.): Comparison of Their Structure and Function.

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Four class I, two class II and eleven class III chitinase were identified by sequencing of thirty eight chitinase-like expressed sequence tags (EST) which provided from cDNA library of Japan Rice Genome Project. Analysis of the derived amino acid sequence suggested that a rice husk protein, designated as OsChi2a, was found to be a new type of class II chitinase homologous to class IV chitinases. All cDNAs were expressed in yeast *Pichia pastories* and the products were homogeneously purified by His-tagged affinity chromatography. Except class III enzymes which containing Asp for hydrolytic position, all chitinases are shown to be capable of actively degrading glycolchitin with high affinities than colloidal chitin. Interestingly, class I, class II, and basic class III enzyme exhibited antifungal activity against *Trichorderma reesei*, but basic class III enzyme exhibited only lytic activity against *Micrococcus lysodeikticus*. We also determined some biochemical properties and the hydrolytic patterns of each enzymes using N-acetylchitooligosaccharides as a substrate.