

The levels of food allergens in worm-wounded or non-wounded green soybeans (edamame) and mature soybeans were investigated by immunoblotting and enzyme-linked immunosorbent assay (ELISA), using allergen-specific antibodies. Non-wounded and worm-wounded soybeans showed similar total protein profiles after Coomassie brilliant blue staining, but some protein bands were observed to have been changed by worm wounding. Immunoblotting with specific antibodies for major soybean allergens (Gly m 5, Gly m 6, Gly m Bd 30 K, and Kunitz soybean trypsin inhibitor) revealed that protein band profiles and intensities were not significantly changed by worm wounding. In contrast, levels of the pollen-related soybean allergens Gly m 4 and Gly m 3 were strongly increased by worm wounding in both green and mature soybeans, as detected by immunoblotting and ELISA. These results suggested that the pollen-related food allergen risk (i.e., oral allergy syndrome; OAS) from soybeans might be enhanced by worm wounding of soybeans.