

# Comparison of Allergen Databases for *In Silico* Allergenicity Assessment

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**Abstract.** The prevalence of allergic diseases has grown in many industrialized and urbanized countries during the last 50 years and outbreak of allergy is increasing in a daily manner. 30 to 40 percent of the populations suffer from allergic diseases. Based on the Increases of different allergies, allergy status has become more difficult in the world. According to the international regulation (FAO, WHO) evaluation of the allergenicity of novel proteins in Genetically Modified Organisms (GMOs) is necessary. In the last four decades GMOs have been developed for food, feed, increase of productivity and industrial purposes. Allergenicity assessment is one stage in process of Biosafety assessment of GMOs. Bioinformatics analysis for allergenicity assessment of proteins expressed from induced genes is a primary step for determination of allergenicity of novel proteins. Bioinformatics analysis for allergenicity assessment of proteins is done via allergen databases. We studied many of the allergen databases including; IUIS, AllAllergy, Allergome, InformAll, AllergoPharma, SDAP, EVALLER, ALLERDB, Biopep, Alegpred, FARRP, ADFS and compared them. Based on our results, allergen databases are different in the number of data, organization and functionality. FARRP has more comprehensive data than others, although SDAP is more efficient and functional than others. Data categorization in ADFS is more detailed than others. Due to these differences between allergen databases, we suggest the bioinformatics analysis for allergenicity assessment should be done with several allergen databases, such as with SDAP, FARRP, Alegpred and ADFS.