

4th International Conference on Agriculture & Horticulture

July 13-15, 2015 Beijing, China

Computational analysis and mining of physiochemical information for seed spices

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Consumption of convenient and ethnic food is expected to increase because more and more people are eager to try new and varied food stuff. But there is still lack of knowledge about the use of spices especially seed spices. But, now a day's use of spices and herbs by consumers is increasing because they are appreciated as completely natural, rather than artificial, additives. Spices are most importantly used for aroma, flavor, color and preservation of beverages and food. Spices can be obtained from many plant parts but seed spices are the crops in which the seeds are used for aroma and as flavoring agent. Seed spices have distinguishing chemistry which is also reflected by their widespread medicinal use and toxicity. Most of the seed spices belong to Apiaceae family except Fenugreek and Nigella. However, despite their widespread recognition as a "natural" group, economic importance, large size and years of study there has been no remarkable study about their genomic and proteomic information and very limited amount of sequential data is available on the public forum or repositories for this family. Until recently, minimal genomic and proteomic analysis and mining of seed spices information has been done. In the present study, we have analysed and mined 17,693 genomic sequences related to seed spices in a relational database. We have also mined 14,938 protein sequences and derived physiological properties for these sequences. Out of these proteins structures 94% proteins showed stable structure. The database is in tabular form and easy to search and retrieve. The selected complete protein sequences were analysed and their isoelectric point, GRAVY Index, stability index, amino acid composition, nature (acidic or basic) etc were derived and assembled in the database. The proposed study of genomes of different species present in Apiaceae family will further enhance our understandings about their important properties. Further this will also enable to find and retrieve all the related information from one place.

Biography

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