

3rd International Conference on Agriculture & Horticulture

October 27-29, 2014 Hyderabad International Convention Centre, India

Molecular studies of cumin (*Cuminum cyminum* L.), for diversity and modeling

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Cumin (*Cuminum cyminum* L.) is a valuable seed spice belonging to the family Apiaceae. It is one of the oldest and economically most important seed spice with medicinal properties. Main countries producing cumin are India, Iran, Morocco and Guatemala. In the present study, experiments were conducted to derive the genetic relationship in Indian Cumin, as very little literature is available for molecular marker based genetic diversity especially in Cumin. Indian cumin germplasm accessions were assessed by molecular markers. This indicates very low level (47%) of genetic diversity among genotypes. Cluster analysis based on the resulting data was performed using UPGMA method and Dice's similarity coefficient by NTSYS software. The Computational studies for 3D structure and function of cumin protein, which showed homology with the protein domain of humans and *E-coli* illustrating that the database available on Apiaceae family is very low. Function analysis revealed molecular function of cumin as structural constituent of ribosome with 99.0% and oxidoreductase activity with 98.7% probability and biological process of oxidation-reduction and ion transport with a probability of 98.9% and 97.8% respectively.

Keywords: RAPD, PCR, cumin, seed spice, genetic diversity, polymorphism and DNA.

Biography

Sharda Choudhary has completed her PhD from Chaudhary Charan Singh University. After qualifying ARS exam she has joined her services as a Scientist in ICAR in 2008. She is the scientist biotechnology at National Research Center on Seed Spices, Tabiji, Ajmer, Rajasthan. She has published two books and more than 15 papers in reputed journals and has been serving as an editorial board member of repute journal. She has visited Department of Crop, Soil, and Environmental Sciences, University of Arkansas, Arkansas, USA for training on "Marker Assisted Selection (Horticulture)".

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