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Symbolic representation of protein sequences on the basis of fuzzy representation of amino acids

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The paper obtains fuzzy representation of amino acids using corresponding fuzzy representation of DNA sequences, the latter being represented on I^{12} (unit hypercube of dimension 12). A protein sequence is represented by a 240×20 matrix. Of the 240 elements of each row representing an amino acid, only 12 components have non-zero fuzzy values, others have zero values only. On the represented matrix, consisting of 20 rows of amino acids separately, attempt is made to find similarities of the amino acids on the basis of the lengths of 240 component vectors of each of them. This leads to six groups of amino acids, which are different from one another, but each such group has its components similar to each other. Using separate symbols for each such group, a protein sequence is finally represented in the form of six different symbols. This may help in the numerical representation of protein sequences.

Biography

Soumen Ghosh was born in West Bengal, India in 1981. He received the B.Tech degree in Electronics and Communication Engineering from Dumkal Institute of Engineering and Technology under West Bengal University of Technology (India) in 2005 and M.Tech degree in the Multimedia and Software System from National Institute of Technical Teachers Training and Research (Kolkata, India) in 2007. He is working as Assistant Professor in Information Technology department at Narula Institute of Technology, Kolkata since 2008. Presently, he is doing his research work under the supervision of D. K. Bhattacharya. His research topics include Bioinformatics & Computational Biology.

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