

## CGPSA- Comparative Genomics Methodology for Phylogenetic and Synteny Analysis of gene families in different species

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With the advancement in the scientific genomic research, there is an explosion in the number of completely sequenced genomes over the past decade, which brought us to the urgency of a well established computational strategy or methodology to analyse different genomes or different gene families in these genomes. We developed a computational strategy, to compare different gene families among various plant species. The analysis pipeline comprised of 5 main steps including identification of genes for the specific gene family, In-silico expression analysis and physical mapping of the identified genes. The phylogenetic analysis can be performed for gene families among different species and the synteny analysis can be done to identify the orthologous and non orthologous genes of a gene family among different species. A care was taken on how to represent the huge sequence data to draw meaningful conclusions. We used this strategy to perform the comparative analysis of the seven defense response gene families such as Beta-glucanase and Chitinase in 23 plant species that not only represents two major classes- dicots and monocots but also belong to very diverse groups like legumes, fruits, vegetables, spices, flowers, medicinal and aromatic plants, grains, and trees. With this strategy a total of 6864 defense response genes were identified and analysed comparatively in the 23 plant species. The developed strategy for comparative genomics of any gene or gene family with computational methods can be used effectively across the genomes.

### Biography

Hukam Chand Rawal has completed his M.Sc. in Bioinformatics from Jamia Millia Islamia, New Delhi, India and now working as Senior Research Fellow (on Bioinformatics and Comparative Genomics of crops) at National Research Centre on Plant Biotechnology under Dr. T. R. Sharma.

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## Bioactivity of rhodophyta: As an ROS scavenger and anti-coagulant

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Many of the marine algae constitute a major part of diet in eastern countries which are known for the longevity of life span. Apart from providing nutrients and minerals these algae may have bioactive functional compounds. Many unusual bioactive compounds are expected by the scientists due to diverse habitat of marine algae. As their environment differs from the terrestrial, there are more possibilities for occurrence of unique and different bioactive compounds. In recent years, bioactive compounds are under phase II clinical trials, which were shown to exhibit anti cancer, anti tumor and anti oxidative properties. In our present study, we have used a common edible marine alga to find its functional properties. The aqueous and ethanol extracts of the red algae was subjected to various bioassay to find its functionality. The crude extracts and its fractions after size exclusion chromatography showed some promising results as antioxidants (DPPH and total antioxidant) and anticoagulants. Further research will be carried out in isolating and characterizing the bio-active compounds. These compounds may find its use in therapeutics or cosmetics.

### Biography

Indumathi P pursuing her research in VIT University under the guidance of Dr. Alka Mehta, Professor, SBST, VIT University. Her research is on isolating and characterizing the bioactive compounds from marine algae. She worked as a research associate in the same university.

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