

Previous Knowledge

M.Sc. (Industrial Microbiology)

GOAL: Microbial production of “Biodegradable” plastics (Poly Hydroxy Alkanoates, PHAs)

- Selection of Organism -> *Pseudomonas cepacia*
- Evaluation for a cheap carbon source (waste from starch industries, cheese whey and oils)
->Palm Oil
- Evaluation of the strain for Lipase Activity
- Standardization of Fermentation conditions

Previous Knowledge

M.Sc. (Bioinformatics)

GOAL: Functional Annotation of Genes and Proteins

- Gene Ontology (GO) Terms
 - Extracted from Biomedical Literature
 - Evaluation of a text mining algorithm → ProFAL
 - Improvement in ProFAL: Database Annotation tool
 - Java, PERL
 - Development and Design of a Database-> APEG
 - MySQL, PHP, JavaScript
- <http://xldb.fc.ul.pt/rebil/tools/apeg/index.php>

Continue....

Previous Knowledge

M.Sc. (Bioinformatics)

- Retrieved 55 distinct documents using 117 distinct citations for 71 genes (48%)
- Extracted Annotations
 - Precision -> 61
 - Recall -> 77.63
- Existing Vs Extracted Annotations –TP annotations for 20 genes out of 31 genes
- Probable Functions –21 functions for 8 genes out of 31 genes.
“Text mining has potential to serve Biologists”

Proposed PhD: Subject Area

Protein 3-D Structure Prediction

Refinement of existing Models by using:

- Effective Search/Sampling strategies
e.g., Parallel Tempering
- Improvement in Energy Functions
e.g., Application of optimization algorithms
- Consideration of Protein Environment
e.g., Inclusion of Solvent Effect