**Course: Advanced Bioinformatics**

**Module title: BLAST Algorithm**

**Module no. : 35**

In this module, several steps of blast algorithm are mentioned.

BLAST Algorithm includes:

1. Remove low complexity region or sequence repeats in query sequence.

2. Make a k-letter word list of the query sequence

3. List the possible matching words

4. Organize the remaining high-scoring words into an efficient search tree.

5. Repeat step 3 to 4 for each k-letter word in the query sequence.

6. Scan the database sequences for exact matches with the remaining high-scoring words.

7. Extend the exact matches to high-scoring segment pair (HSP).

8. List all of the HSPs in database whose score is high enough to be considered.

9. Evaluate significance of the HSP score

10. Make two or more HSP regions into a longer alignment

11. Show the gapped Smith-Waterman local alignments of the query and each of matched database sequences.

12. Report every match whose expect score is lower than a threshold

parameter E.