

Fig. 1. Sequence logo of Nad1 protein family motif created by MEME.

These findings also showed that all vascular plant species shared eight identical motifs (Figure 2).

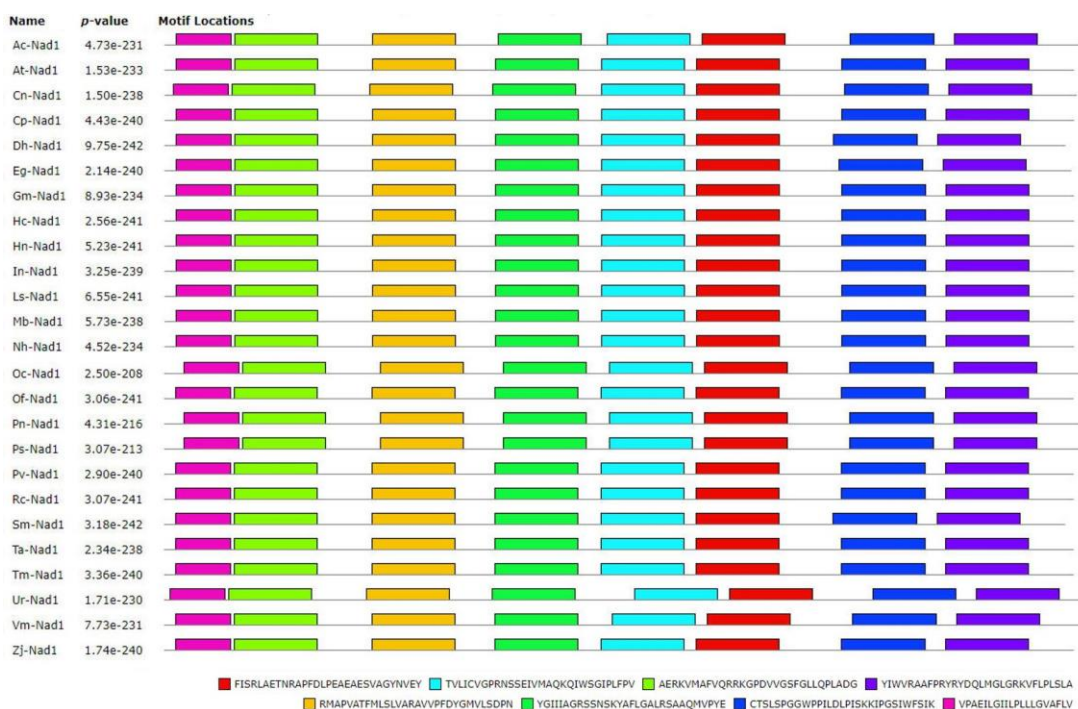


Fig. 2. Motifs of Nad1 protein in vascular plant species. The MEME motifs are shown as different boxes. The p-value of a sequence is the expected number of sequences in a random database of the same size that would match the motifs as well as the sequence.

Nucleotide and protein sequences comprise patterns or motifs that have been preserved through evolution since they are crucial to the function or structure of the molecule. In proteins, these conserved sequences may be involved in the binding of the protein to its substrate or to another protein, may contain the active site of an enzyme or may determine the three dimensional structure of the protein [13]. Members of protein families are often characterized by more than one motif (on average each family has 3-4 conserved regions) which increases the certainty that a protein has been assigned to a precise family [14]. Therefore, motif analysis of Nad1

protein was done and 8 motifs were recognized in this protein family. All motifs were shared in all vascular plant species. Motif 5 had the less E-value among all motifs which was 1.5e-587

CONCLUSION

These common conserved motifs among different vascular seed plant species confirmed Nad1 protein functional similarities.

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