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Title:	Identification and heterologous expression of labdane-type type diterpene synthases from Sesamum indicum in Saccharomyces cerevisiae
Authors:	<a href="#">Ashim, Ananya</a>
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Abstract:	<p>Diterpenes have a large structural and functional diversity, and many diterpenes are known to be commercially important products. However, their production by their natural source such as plants gives poor yields. Furthermore, producing these complex compounds chemically is cost ineffective. In order to increase their production, engineering their biosynthetic pathway in heterologous hosts offers an alternative approach for their extraction from natural sources. Metabolically engineering microorganisms like <i>Saccharomyces cerevisiae</i> (<i>S. cerevisiae</i>) provide a much better route for such metabolites. In this thesis, efforts were made towards identifying possible diterpenes of the plant <i>Sesamum indicum</i> (<i>S. indicum</i>), by first identifying the potential diterpene synthases bioinformatically, and then following this up with expression in <i>S. cerevisiae</i>. There are no known diterpenes of <i>Sesamum indicum</i> known till now. In the lab previously an ORF, SiCPS1 was identified as a potential diterpene synthase from this plant. In this thesis, additionally 4 potential ORFs were identified as potential diterpene synthases. These had slightly modified signatures than the known diterpene synthases. These ORFs were custom synthesized and heterologously expressed with other required genes for producing diterpenes in <i>S. cerevisiae</i>. The product thus obtained from the yeast colonies was purified and attempts were made to analyse these by GC/GC-MS to ultimately characterize the enzymatic functions of these new diterpene synthases from <i>Sesamum indicum</i>.</p>
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