Asymmetric Synthesis of (+)-Hinokinin, (+)-Dihydrocubebin and Cubebin Dimethyl Ether, a New Lignan from *Phyllanthus niruri*

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The asymmetric synthesis of the new lignan cubebin dimethyl ether was accomplished in eight steps with an overall yield of 40 %. In addition, the known lignans (+)-hinokinin and (+)-dihydrocubebin were synthesized by this route. Our approach involves the highly diastereoselective and enantioselective ($de \geq 98\,\%$, $ee \geq 98\,\%$) construction of a *trans*-substituted 2,3-dibenzylbutyrolactone through an asymmetric Michael addition of an enantiopure lithiated aminonitrile to 5*H*-furan-2-one.

Key words: Lignans, Nucleophilic Acylation, α-Aminonitrile, Michael Addition, Asymmetric Synthesis