FRESNO STATE
Chemistry

Chemistry Department Seminar Series

Enantiopure Total Synthesis of Hydoncarpin D

by

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Thesis Presentation
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Abstract

Hydnocarpin D was isolated from the flowering plant Hydnocarpus anthelminthic in family Flacourtiaceae, as a racemic mixture devoid of optical activities, in an extremely limited amount. Racemic Hydnocarpin D has been reported to have promising anti-proliferative potency towards a human DU145 prostate cancer cell line. One total synthesis of racemic hydnocarpin D and two semi-syntheses of enantiopure hydnocarpin D have been reported. There are no reports, however, on the anti-proliferative potency and total synthesis of its optically pure enantiomers. This study thus aims to synthesize the (10S,11S)- and (10R, 11R)-hydnocrapin D enantiomer for an in-depth investigation on the anti-proliferative potency of the enantiomers. A trace amount of the target compounds have so far been successfully synthesized from two key intermediates, 4',5,7-O-tri(p-methoxybenzyl)luteolin and the phenylpropanoid moiety with R,R and S,S-configuration at C-1 and C-2. These two intermediates have been synthesized from naturally abundant hersperidin and vanillin, respectively. The total synthesis, as well as two synthetic attempts, will be presented.

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