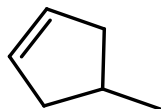


Total Synthesis of (-)-Pepluanol B: Conformational Control of the Eight-Membered-Ring System

Jing Zhang, Meng Liu, Chuanhua Wu, Gaoyuan Zhao, Peiqi Chen, Lin Zhou, Xingang Xie, Ran Fang, Huilin Li,* and Xuegong She*



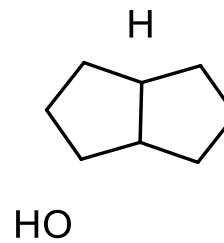
(-)-Pepluanol B (3)

- Pepluacetal and Pepluanol A-D are family of *Euphorbia diterpenoids*
- These five diterpenoids were isolated from the plant *E. peplus* in 2016
- Effective inhibitory activity for asthma, type-1 diabetes, multiple sclerosis
- Pepluanol B (**3**) comprises unique fused polycyclic skeletons with six to eight stereogenic centers

Lakshmi R
Liu Research Group
Total synthesis presentation
04/07/2020

Retrosynthetic Analysis of the (-)-Pepluanol B

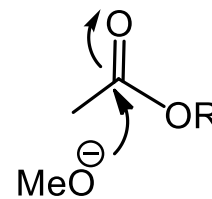
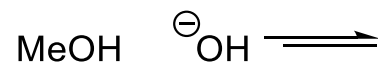
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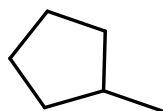


Step 1

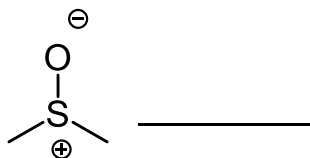
Pd^{II}

Step 2: acetate to alcohol

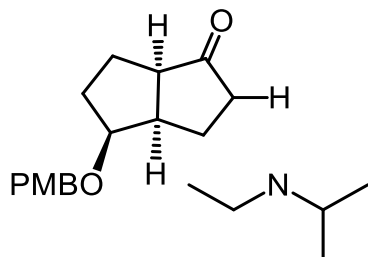




Step 4 mechanism: Swern Oxidation



Steps 5-7: Eschenmoser methylenation

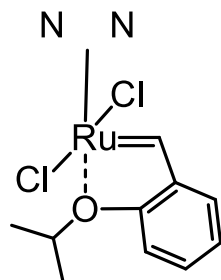


8) 5 mol



Step 8:

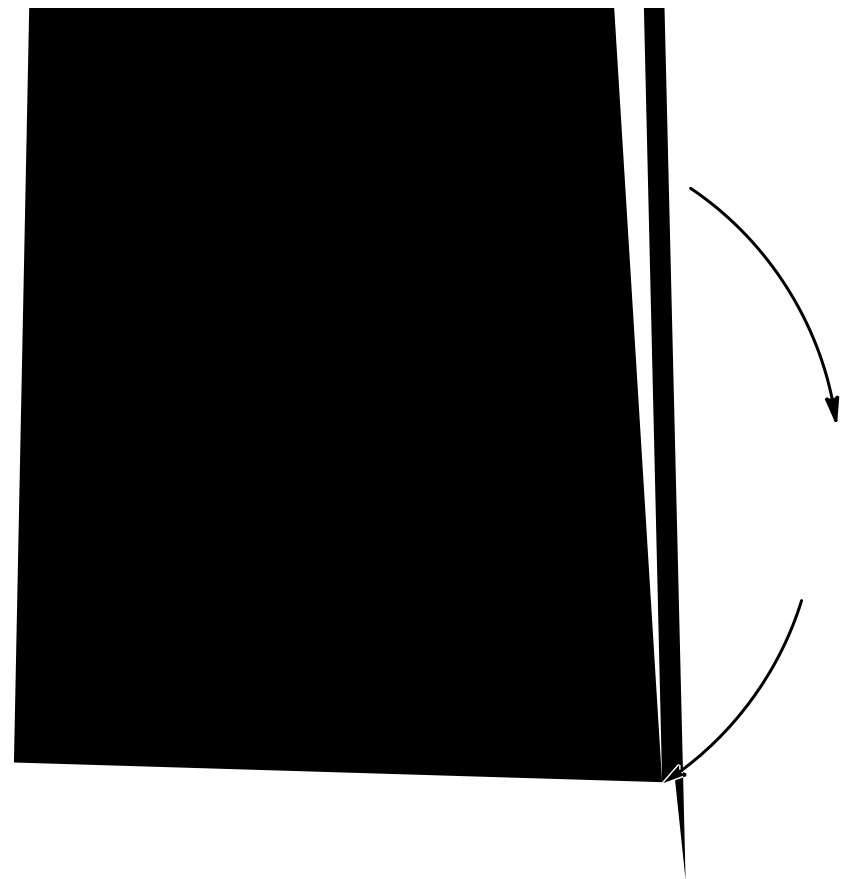
Steps 12

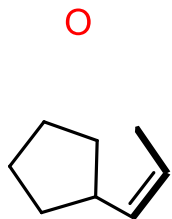


Step 16 mechanism: Ley-Griffith oxidation

Step 14

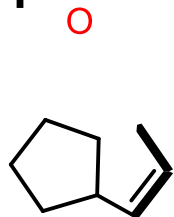
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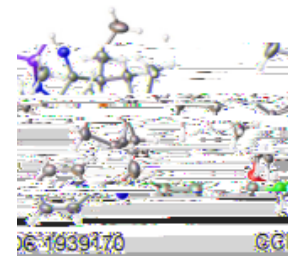
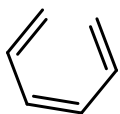


PMB

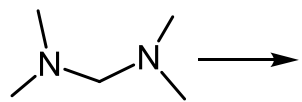
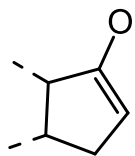
Step 18

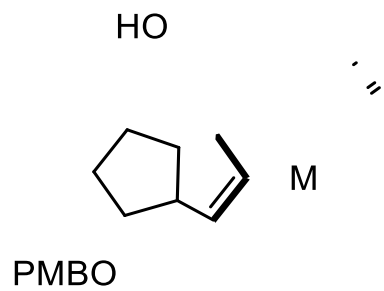


Step 19: PMB deprotection



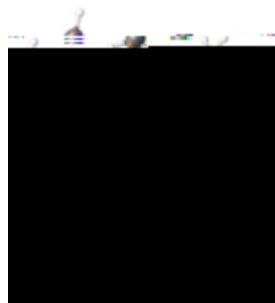
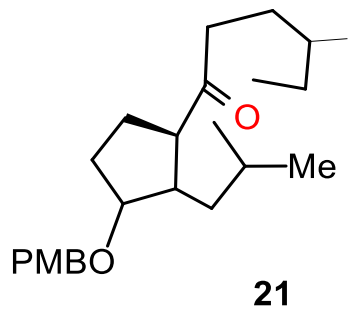
Step 21





Step 23

Step 24



0.0 (c 0.1 MeOH) $[\alpha]_D^{20} = -9$
~~0.0 (c 0.1 MeOH) $[\alpha]_D^{20} = -9$~~

Step 27
