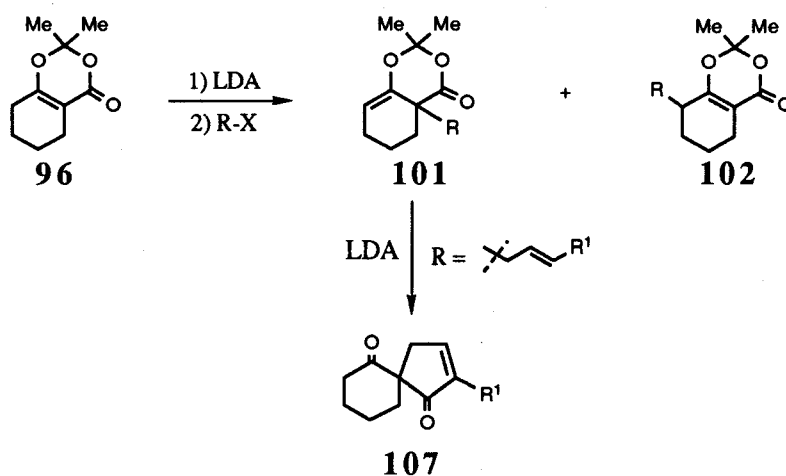


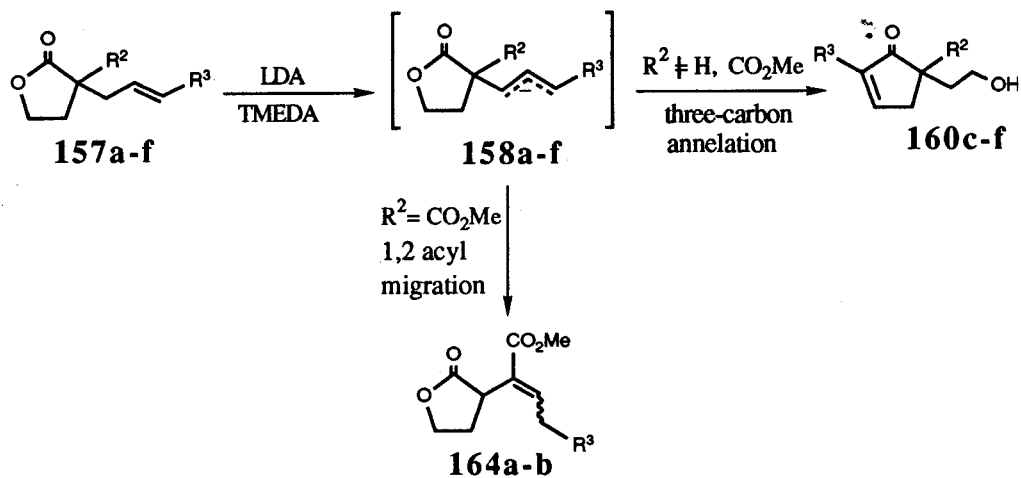
<b>Thesis title</b>	Application and Scope of the Three-Carbon Annulation Reaction
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### Abstract

The first part of this thesis deals with alkylation reaction of the dioxolenone **96** from which the  $\alpha$ - and  $\gamma$ -alkylation products **101** and **102** respectively were obtained respectively. Cyclisation of **101** provided spiro[4.5]dec-2-ene-1,6-dione **107** via a three carbon annelation reaction.



The three carbon annelation reaction was further demonstrated by base-induced reaction of  $\gamma$ -butyrolactones **157a-f** which provided alcohols **160c-f** ( $R^2 \neq H$ ,  $CO_2Me$ ). However a 1,2 acyl migration took place to give **164a-b** when the group  $R^2$  in **158** was  $-CO_2Me$ .



The second part of this thesis describes the synthesis of bilactone **243** or **244** derived from the retro Diels-Alder reaction of anthracene adduct **241** (or **242**). However, attempts to synthesize the endoperoxide **245** were unsuccessful.

