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### Studies on the Wittig Reaction (IV) A Stereoselective Synthesis of the Insect Sex Pheromone of *Laspeyresia pomonella*, E,E,-8,10-Dodecadien-1-ol

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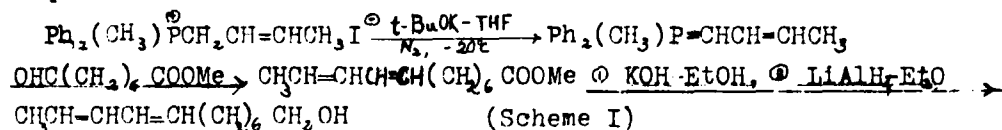
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# Studies on the Wittig Reaction (IV) A Stereoselective Synthesis of the Insect Sex Pheromone of *Laspeyresia pomonella*, E,E-8,10-Dodecadien-1-ol

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The Wittig reaction was widely used in the synthesis of natural products particularly in the area of insect pheromone synthesis. But unfortunately when a moderated triphenylphosphonium ylid is used,the resultant compound is a impractical E,Z mixture.For instance,the title compound was once synthesized by the Wittig reaction between butenylidene triphenylphosphorane and 8-oxo-octanoate, followed by hydrolysis and reduction.The product was a mixture containing 75% 8E,10E isomer and 25% 8Z,10E isomer.Recently we have reported that a simple change in phosphorus substituents from  $\text{Ph}_3\text{P}=\text{CHR}$  to  $\text{Ph}_2(\text{R}'\text{CH})\text{P}=\text{CHR}$  ( $\text{R}'=\text{alkenyl}$  or  $\text{H}$ ) dramatically increases the proportion of E olefin formed from moderated ylides( $\text{R}=\text{alkenyl}$ ) and aliphatic aldehydes. According to this fact, here we report a stereoselective synthesis of E,E-8,10-dodecadien-1-ol from butenylidene methyl diphenylphosphorane and 8-oxo-octanoate in the absence of lithium salt(Scheme I).After hydrolysis and reduction,the title compound containing 94.7% 8E,10E isomer was obtained.This approach affords a convenient synthesis for insect pheromones bearing a E,E,conjugated diene moiety.This experimental fact once again illustrates the stereochemistry of allylic diphenylphosphonium ylid is quite different from the corresponding triphenylphosphonium one.



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