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Synthesis of Heterocycles Based on α,β -Unsaturated P(III) Derivatives

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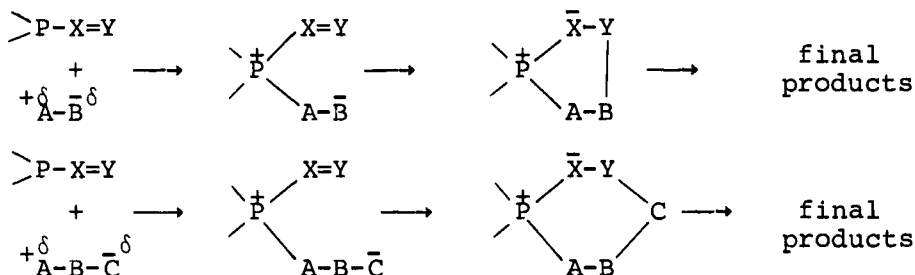
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SYNTHESIS OF HETEROCYCLES BASED ON α,β -UNSATURATED P(III) DERIVATIVES

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A general method of phosphorus heterocycle synthesis has been developed. It is based on the interaction between α,β -ethylene, acetylene P(III) derivatives and reagents, which contain electrophilic and nucleophilic centres in α,β - and α,γ -positions, e.g. compounds with activated multiple bonds; β -halogenalkanols and thiols; nitrilimines, nitrilylides as 1,3-dipoles. This process is an unsynchronic ionic cycloaddition which begins with the attack of a phosphorus atom to the electrophilic centre of a reagent.



The formation of phosphorus heterocycles is defined by the possibility of formation of unstable cyclic ylids, and by the conditions which promote their transformation into stable final products. The most important regularities of those processes are stated. A tendency of α,β -unsaturated derivatives to form heterocycles depends on the nature of multiple bond and changes in the line $N=C>C=C>C=C$.