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The Reaction of Phosphonium Ylids with o-Quinones and Triketones

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The reaction of 1,2-benzo[a]phenazine-8,9-dione 1 and/or 1,2,3-indantrione 2, with phosphonium ylides has been studied. When 1 was reacted with two molar amounts of methoxy-(3a) and/or ethoxycarbonylmethylenetriphenylphosphorane (3b), in THF, at the reflux temp. for 3 hrs, dimethyl (4a) and/or diethyl 1,2-dihydro 2-benzo a furo[3,2-h]phenazine-1,2-dicarboxylate (4b), along with triphenylphosphine oxide and triphenylphosphine were obtained. On the other hand, reaction of equimolar amounts of ylides 3 with the red trione 2 in THF at room temp., afforded colourless crystals of 2',4'-dihydroxyspiro[indan-2,3'(2'H)-indeno[1,2-b]pyran]-1,3,5'(4'H)-trione diacetate (5a) or dipropionate (5b), together with triphenylphosphine oxide. Formation of 6-membered dihydro 2 aromatic ring like 5, is considered as a new reaction of phosphoranes. The structure of the new compounds 4 and 5 was confirmed and the reaction mechanisms are discussed.

