1,3-Bis-(4-methyl-5-phenyl-1,2-dithiol-3-ylidene)propane-2-thione, a Five-sulphur Compound Related to 1,6,6aλ^4-Trithiapentalenes

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Summary A simple route to five-sulphur atom compounds related to the 1,6,6aλ^4-trithiapentalenes is reported.

3-METHYLTHIO-4-METHYL-5-PHENYL-1,2-DITHIOLYLIUM IODIDE condenses with 4-hydroxy-3*H*-pyran-2,6-dione[1] to give the trione (**1**), m.p. 299—303 °C (decomp.), which is converted by acidic hydrolysis into the propanone (**2**), m.p. 253—254 °C (decomp.) (Scheme).† The propanone (**2**) reacts with tetraphosphorous decasulphide to yield the propanethione (**3**), m.p. 283—285 °C (decomp.), λ_{max}

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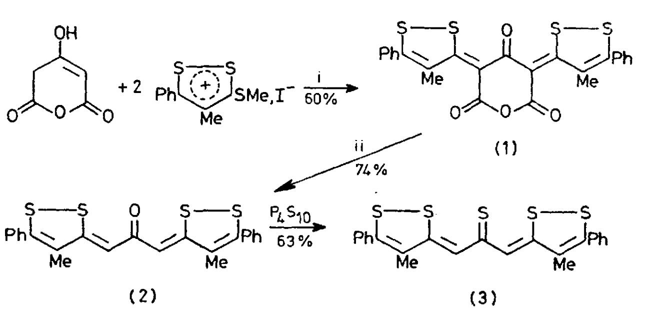
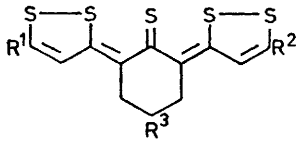
† Satisfactory analytical and spectroscopic data were obtained for all compounds.



SCHEME. i, heat in refluxing CH_2Cl_2–pyridine for *ca.* 21 h; ii, 80% H_2SO_4, *ca.* 150 °C.

(dioxan) ($\epsilon \times 10^4$) 618 (5·19), 582 (sh), 542 (sh), 445 (1·36), 383 (sh), 317 (9·51), and 254 (4·17) nm; ν_{max} 1440br cm^{-1}; ^{1}H n.m.r. δ ($CDCl_3$) 7·6 (1H), 7·4 (5H), and 2·3 (3H); ^{13}C n.m.r. δ ($CDCl_3$) 182·4, 168·5, 153·9, 134·3, 131·5, 129·2—128·5 (3 poorly resolved lines), 122·6, and 16·4 p.p.m. Previously, Stavaux and Lozac'h[2,3] have prepared the related compounds (**4**) from the appropriate cyclohexanones in a multistep sequence. The presence of the cyclohexane unit is, however, an absolute prerequisite for the success of their pathway. Compounds of the type (**2**) (and **1**) have not been reported.

The structures shown for (**2**) and (**3**) are in agreement with spectroscopic data, which indicate a symmetrical structure. Furthermore, structure (**3**) is analogous to that preferred by Stavaux[3] and Sletten *et al.*[4] for (**4**).



(**4**)

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