DIELS-ALDER REACTIONS OF 2-VINYL- Meso- TETRAPHENYLPORPHYRIN WITH QUINONES

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The synthesis of new porphyrin derivatives by structural modification of simpler porphyrins is a valuable alternative to the total chemical synthesis of these compounds. Knowing the versatility and selectivity of pericyclic reactions in organic synthesis, it is not surprising that these types of reactions have been applied in the chemical modification of porphyrins. In fact, it has been shown that porphyrins can participate in a range of pericyclic reactions, namely Diels–Alder reactions, 1,3-dipolar cycloadditions, 1,5-electrocyclizations and cheletropic reactions.[1] We have also shown that 2-vinyl-meso-tetra-arylporphyrins can also participate as dienes in Diels–Alder reactions.[2]

In this communication we describe the reaction of porphyrin 1 with 1,4-naphthoquinone and 1,4-benzoquinone. In both cases, the Diels–Alder reaction occurs but the adducts are converted into other porphyrin–quinone derivatives.

The formation of these novel compounds and their structures, deduced from detailed spectroscopic experiments, will be discussed.

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