

FACILE AND ENVIRONMENTALLY BENIGN AEROBIC CASCADE OXIDATION OF SUBSTITUTED CYCLOPENTANE-1,2-DIONES USING METALLOPORPHYRIN CATALYSTS

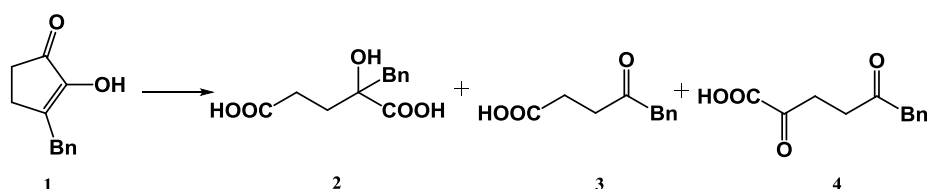
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Currently, the development of sustainable chemical processes is one of the major challenges in chemical science and engineering. Over the past decades, various transition metal catalysts have been successfully utilized to convert alkenes to epoxides or carbonyl compounds using different oxidants [1,2,3]. The most useful terminal oxidant from the environmental point of view is atmospheric oxygen and among catalysts, synthetic metalloporphyrins are very prospective. Since in the case of the preparation of pharmaceuticals or valuable complex biologically active compounds, a multi-step synthesis is necessary, the development of special catalytic conditions to assist this type of chemical reaction is of paramount importance.

Herein we report a new facile and environmentally benign method for the aerobic cascade oxidation of cyclopentane-1,2-diones by using metal porphyrins as catalysts, yielding intermediates of important biologically active compounds. This method is operationally simple, does not require the use of harmful oxidants and reductants, and can be employed under ambient conditions.



Scheme 1 Oxidation products of cyclopentane-1,2-dione 1.

References

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