

Industrial process for manufacturing of RRR vitamin E (natural form)

The worldwide market for Natural forms of Vitamin E is expected to grow at over 5%, and currently generated over 530 million US\$ in 2017.

Four tocopherols (class of organic chemical compounds, which have vitamin E activity) are available in nature and are absorbed with the diet, but only one RRR- α -tocopherol satisfies the criteria of being a vitamin. However Synthetic vitamin E manufactured is limited to one isomer α -tocopherol.

Natural Forms of Vitamin E—NVE

The natural forms of Vitamin E (NVE) have different and unique biological activities, thus the natural form is highly desirable for a number of industries. NVE is difficult to manufacture as the RRR form which exhibits the highest relative bioactivity of all stereoisomer. Researchers in the school of Chemistry have developed a synthetic route that manufactures the natural form of Vitamin E in a scalable, cost effective route.

Technology Description

The method uses a patented asymmetric synthesis approach to the preparation of the NVE, based on asymmetric Grignard methodology.

Tertiary alcohol precursors of both C2 diastereoisomers of α -tocopherol can be prepared by a novel patented asymmetric Grignard synthesis.

The products were converted to their respective α -tocopherols in 3 steps, which allowed a definitive re-assignment of their absolute configurations. This presents a practical solution to a long-standing problem, the asymmetric construction of the C2 stereocentre of α -tocopherol. For instance both isomers: (R,R,R)- α -tocopherol and (S,R,R)- α -tocopherol could be prepared with the length of synthetic route depending on the desired specification.

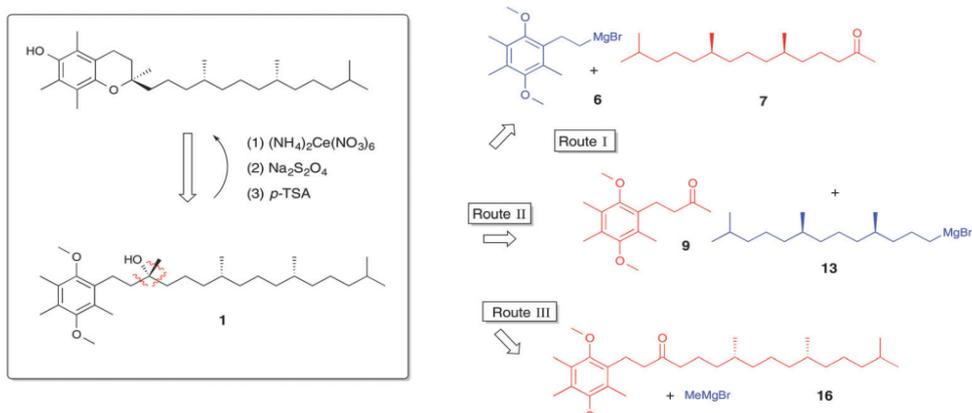


Figure 1: Summary of the three-way disconnection of (RRR)- α -tocopherol precursor tertiary alcohol

VALUE PROPOSITION

A Novel method to produce the pure forms of Vitamin E by a scalable method

MARKETS

Nutraceuticals, medical, Food.

IP STATUS

Patented technology

WO2015EP61610 20150526

US2017204036

Publications;

[https://doi.org/10.1039/](https://doi.org/10.1039/C7OB00751E)

C7OB00751E

OPPORTUNITY

License, samples, research collaborations

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