

Levoglucosenone

Chemistry Introduction

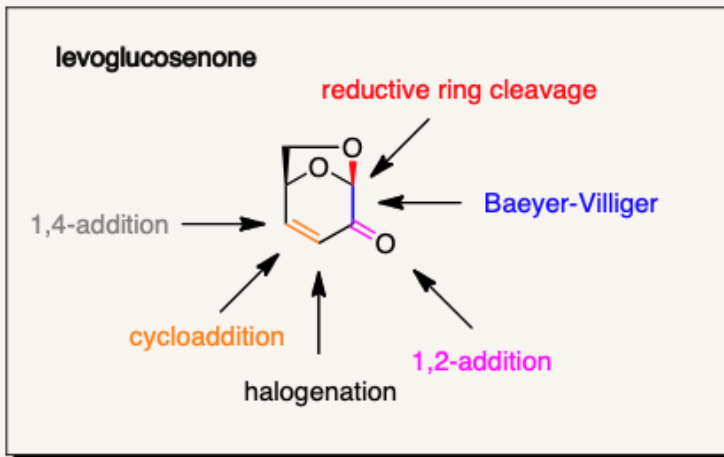
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March 2022

Levoglucosenone (LGO) is a uniquely versatile molecule with Circa's ability to produce LGO at scale being the first step in changing how we produce essential sustainable chemicals.

- Circa has fine-tuned and patented for more than 10 years and five pilot plants the **world's only scalable production process of LGO and its derivatives**
- **Extensive commercial work and strong regulatory tailwinds** resulting in a large market searching for scalable and sustainable biobased chemical alternatives
- **Sustainability** – Life cycle assessment has shown our Furacell™ process to be nearly greenhouse neutral
- **Scale** – Currently produced at a rate of 500 kg per month as part of a 15 tonne per year Cyrene™ production facility (Australia)
- **Scalability** – building 1,000 tonne per year Cyrene™ facility (France operational 2023) providing additional LGO capacity. Circa capacity target of 80,000 T/y by 2030
- Get in touch with Circa Group **to learn more** about how using the scalable, sustainable biobased platform molecule LGO can benefit your project or process

Levoglucosenone (LGO) – Bio-privileged Molecule



CAS	37112-31-5
Names	(-)-levoglucosenone (1 <i>S</i> , 5 <i>R</i>)-6,8-dioxabicyclo[3.2.1]oct-2-en-4-one 1,6-anhydro-3,4-dideoxyhex-3-enopyran-2-ulose
MW	126.11 g/mol
Density	1.32 g/cm ³

LGO is a
'bio-privileged molecule'

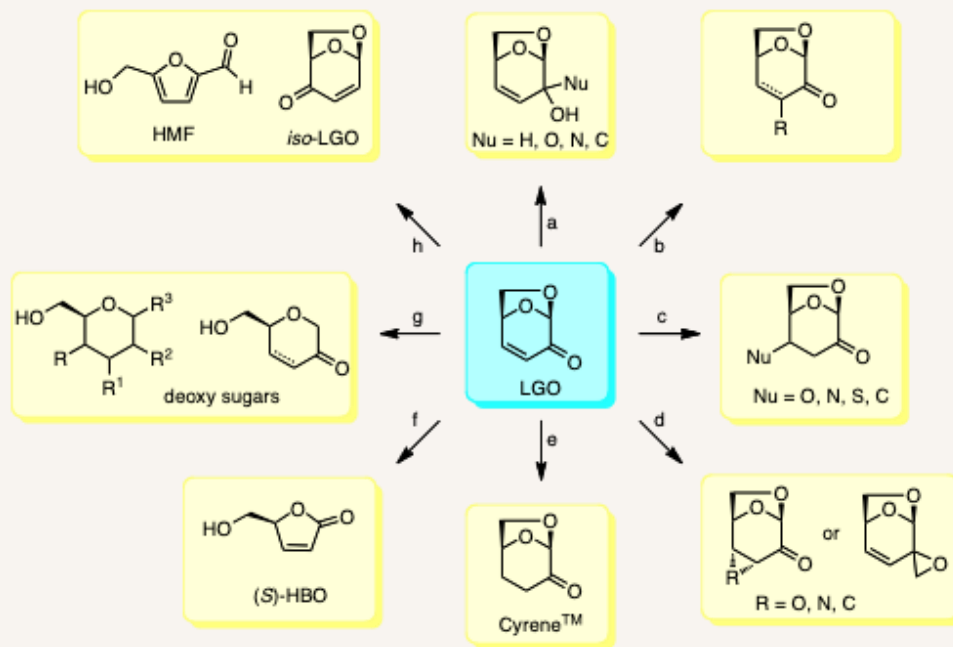
"A biology derived chemical intermediate that can be efficiently converted to a diversity of chemical products including both novel molecules and drop-in replacements"

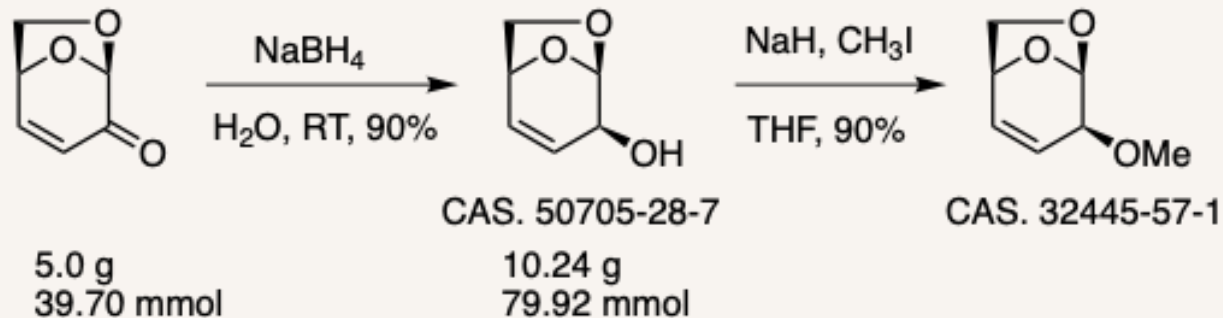
(Shanks,2017)

Reviews

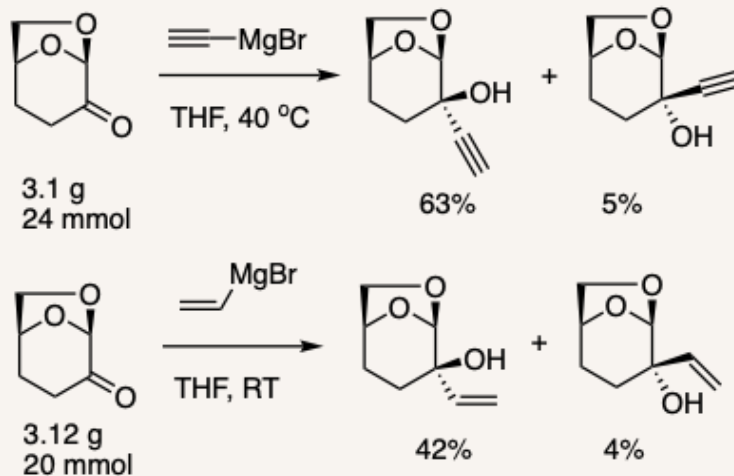
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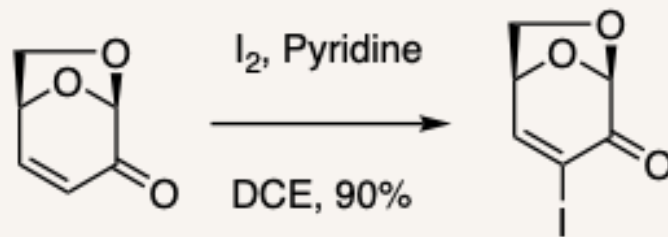
Levoglucosenone (LGO) – Chemical Reactivity

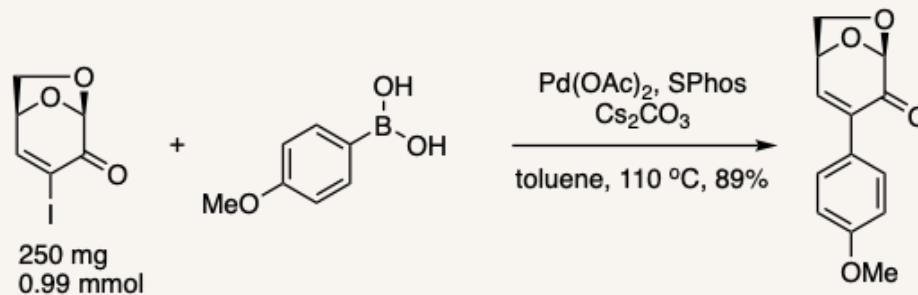




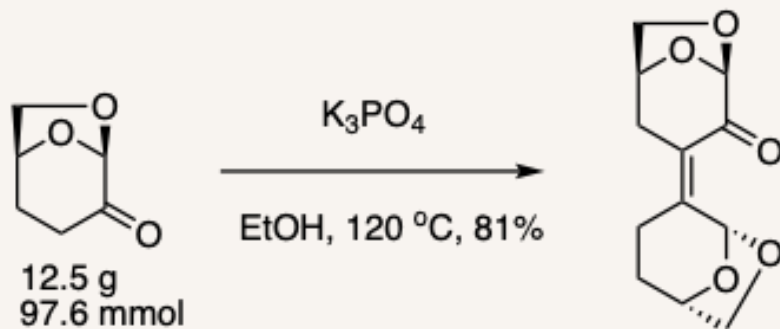
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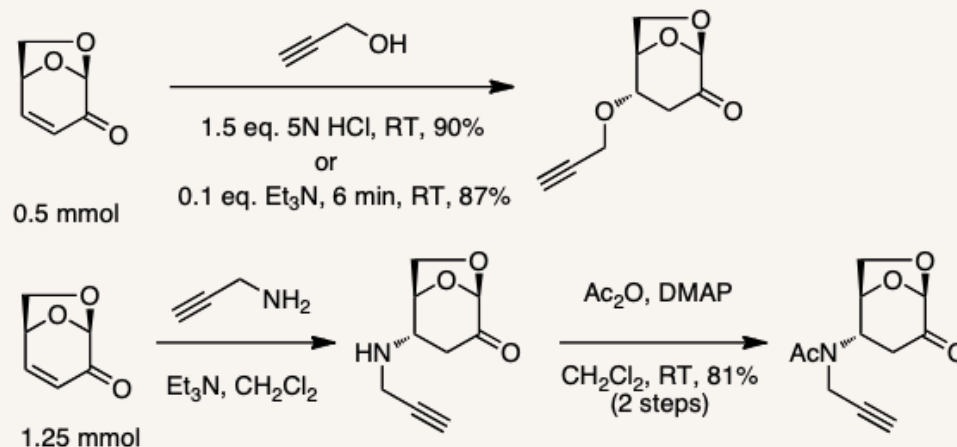


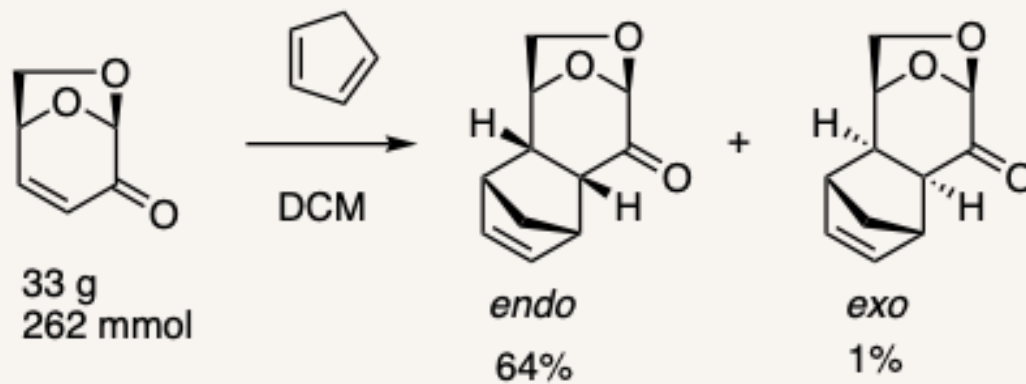




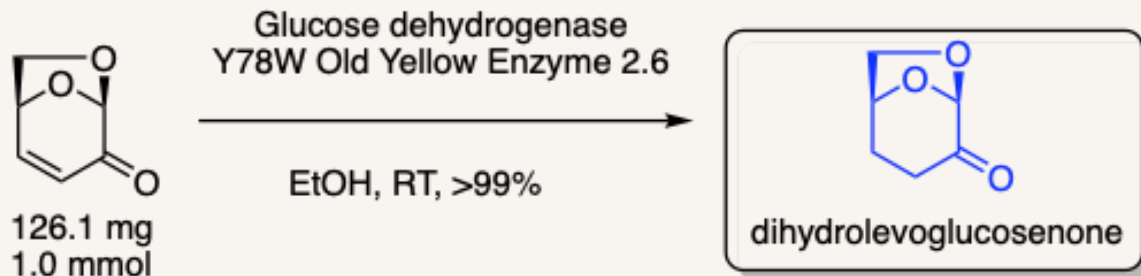
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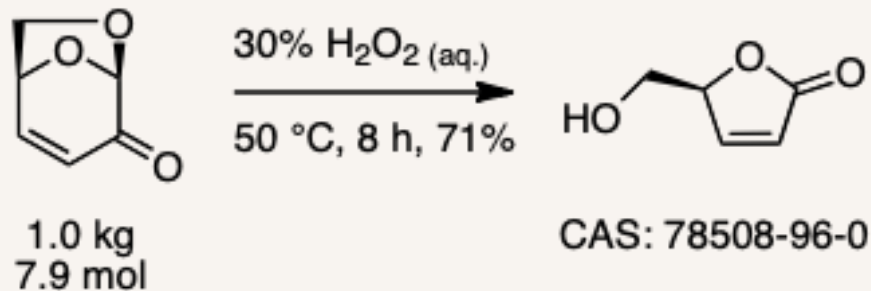




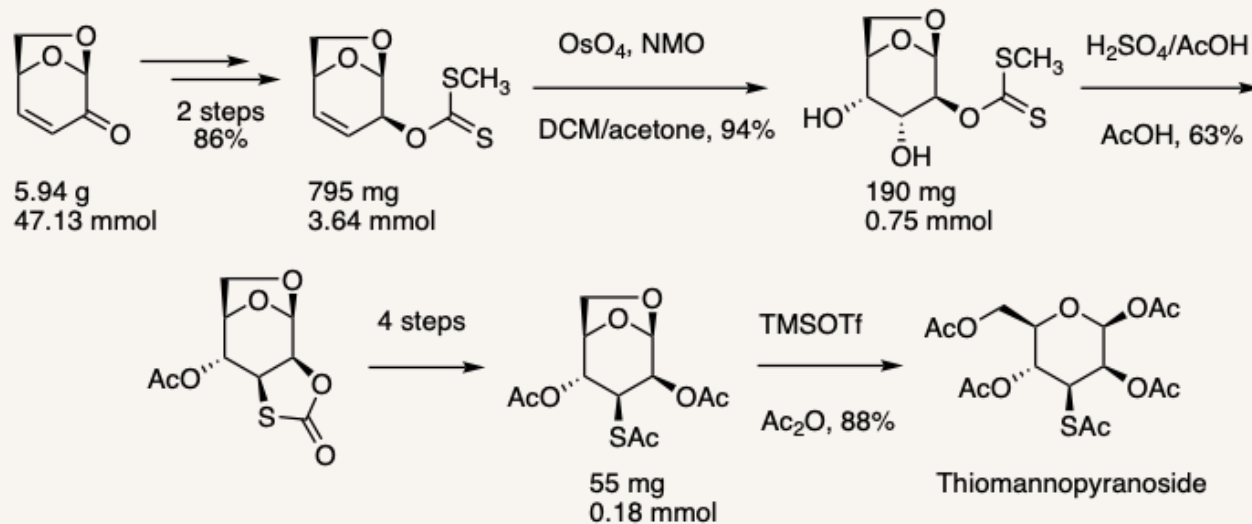


Levoglucosenone (LGO) – Alkene Reduction

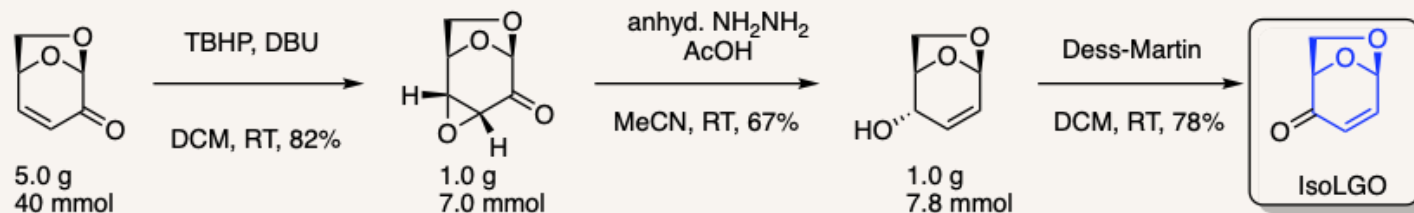




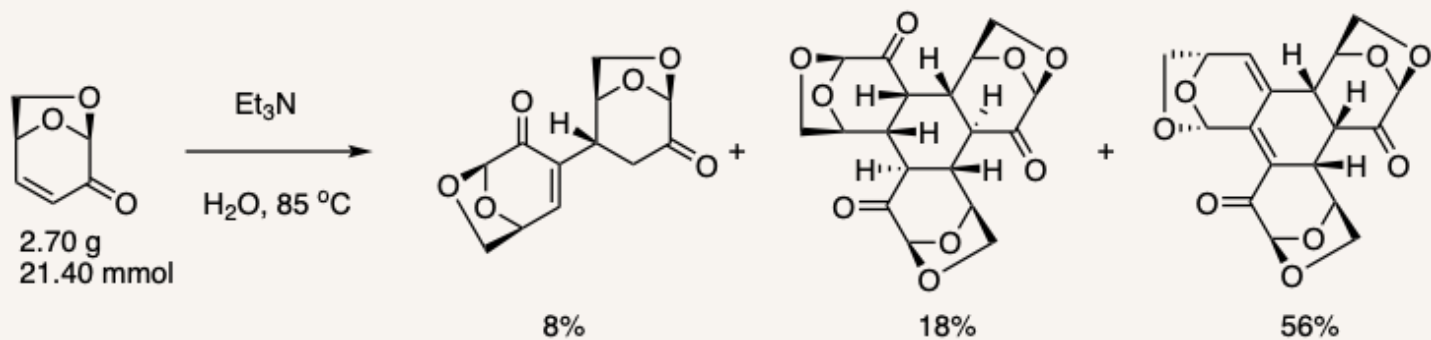
Levogluosenone (LGO) – Anhydro Ring Opening

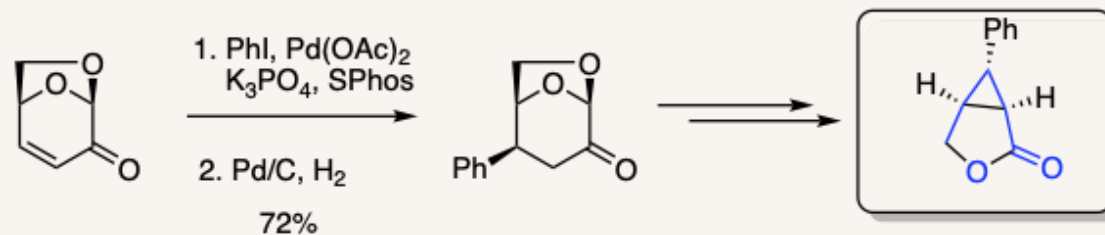
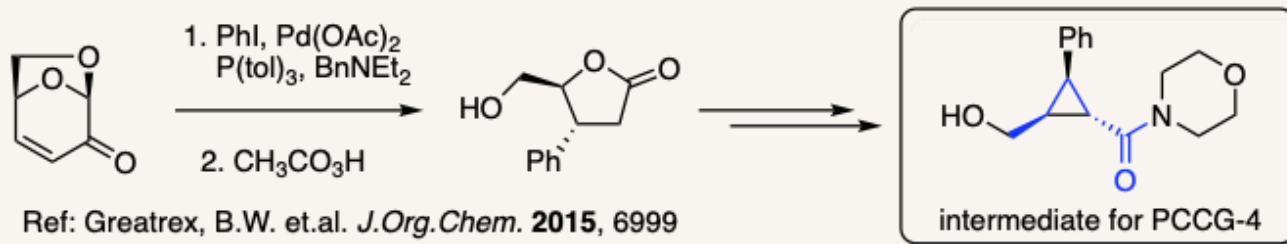


Levoglucosenone (LGO) – *iso*-LGO

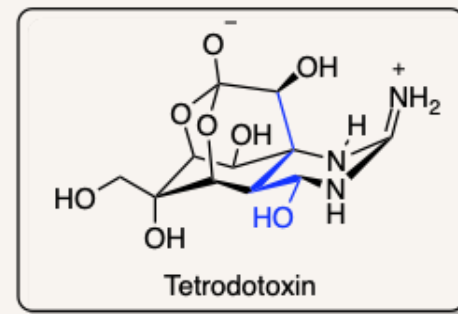
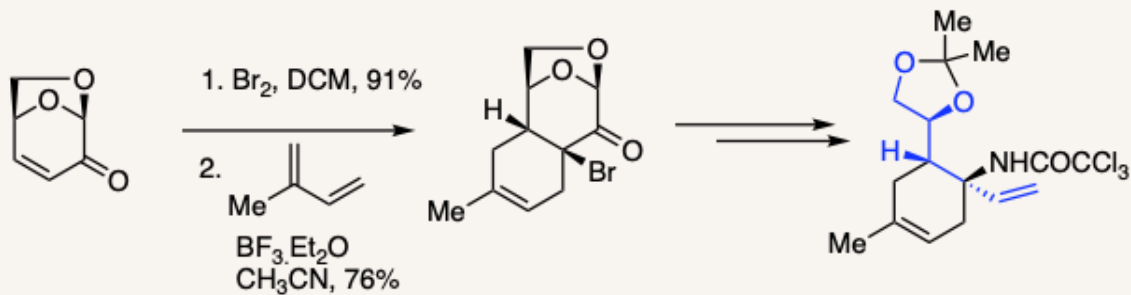


Levoglucosenone (LGO) – Oligomerization





Levogluosenone (LGO) – Natural Product



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