

Quadrant II – Transcript and Related Materials

Programme: T.Y.B.Sc. (Chemistry)

Subject: Chemistry

Course Code: CHC 110 Section B

Course Title: Organic Chemistry

Unit: 04- Terpenes

Module Name: Synthesis of Camphoric acid and Camphoronic acid

Module No: 11

Name of the Presenter: Ms. Anuja B. Naik

Notes

Transcript of the video

Hello students, I am Ms. Anuja Naik from Ganpat Parsekar College of Education, Harmal, Pernem Goa and I will be dealing with the synthesis of camphoric acid and camphoronic acid.

The lecture deals with,

- Synthesis of camphoric acid and camphoronic acid.

So, at the end of the lecture, the student will be able to:

- Learn the synthesis of Camphoric acid and Camphoronic acid.

Synthesis of Camphoric acid

- ✓ This was given by Komppa.
- ✓ This synthesis involves two steps:
 - Step I- Preparation of 3,3-dimethyl glutaric acid from mesityl oxide and ethyl malonate.
 - Step II- Conversion of 3,3-dimethyl glutaric acid into camphoric acid.

Step I- Preparation of 3,3-dimethyl glutaric acid from mesityl oxide and ethyl malonate.

In this step, Mesityl oxide and Ethyl malonate undergo Michael condensation reaction followed by Dieckmann reaction to give cyclic diketone derivative which on hydrolysis and further treatment with Sodium hypobromite give 3,3-Dimethyl glutaric acid which on reacting with ethanol in the presence of HCl gives 3,3-Dimethyl glutaric ester.

Step II-Conversion of 3,3-dimethyl glutaric ester into camphoric acid.

In this step, 3,3-dimethyl glutaric ester on treatment with diethyl ester in the presence of Sodium ethoxide gives Diketoapocamphoric ester which is converted to Diketocamphoric ester on treatment with sodium and methyl iodide. Further, this is reduced and then hydrolyzed. Further on reacting with HBr and zinc in the presence of acetic acid gives Camphoric acid.

Synthesis of Camphoronic acid

This was given by Perkin Junior and Thorpe. In this synthesis, acetoacetic ester is converted into the dimethyl derivative which is then subjected to Reformatsky reaction with ethyl bromoacetate. The product so obtained is converted into halide and then into cyanide. Finally, the latter compound when hydrolyzed yields camphoronic acid.

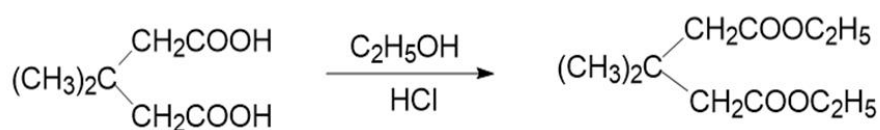
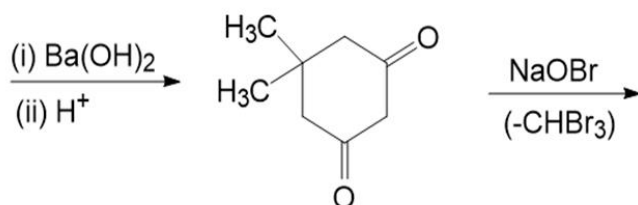
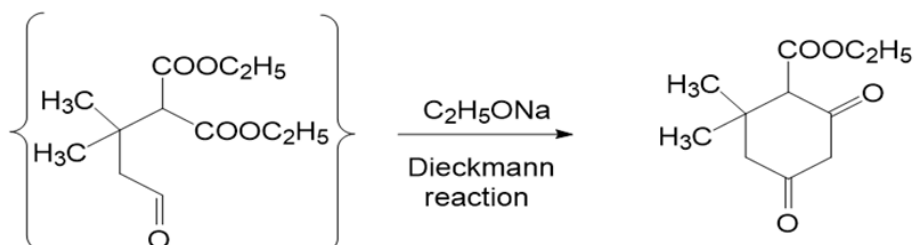
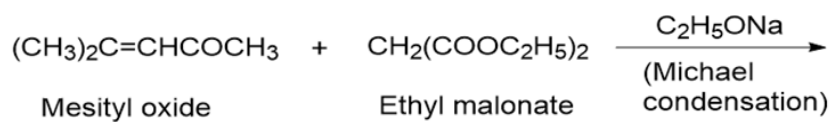
And these are the references.

Thank you.

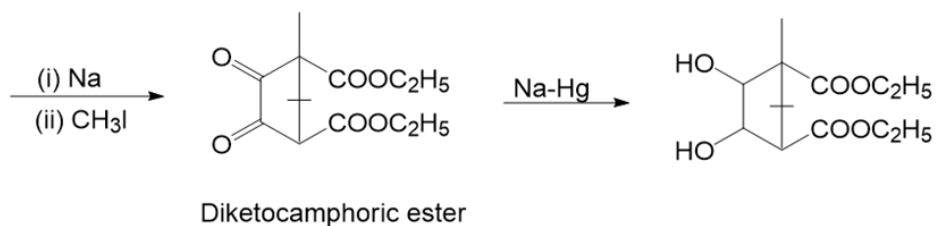
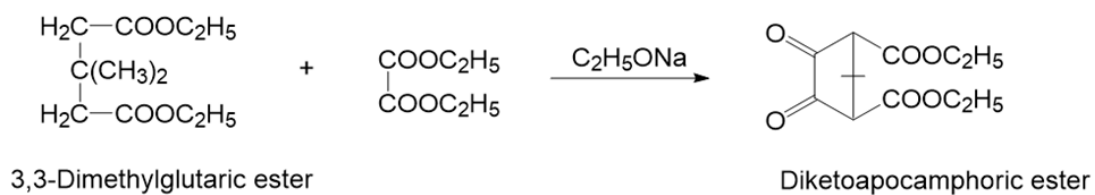
Summary of the video (Abstract of the transcript)

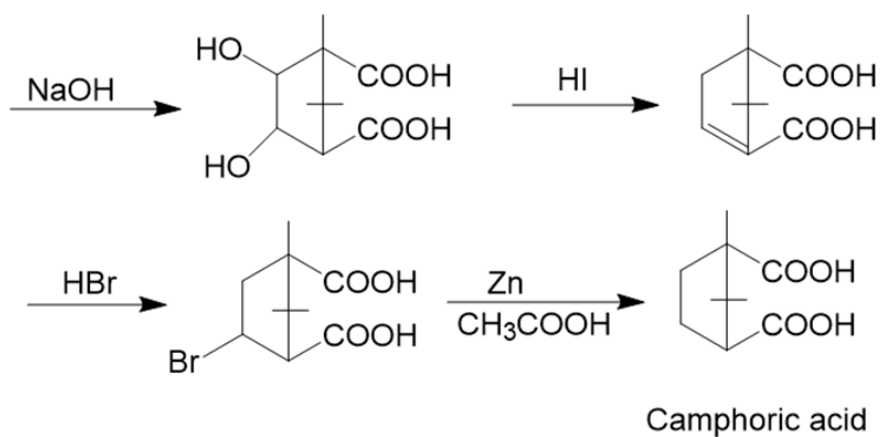
➤ **Synthesis of Camphoric acid**

- ✓ This was given by Komppa.
- ✓ This synthesis involves two steps:
 - Step I- Preparation of 3,3-dimethyl glutaric acid from mesityl oxide and ethyl malonate.
 - Step II- Conversion of 3,3-dimethyl glutaric ester into camphoric acid.
- Step I- Preparation of 3,3-dimethyl glutaric acid from mesityl oxide and ethyl malonate



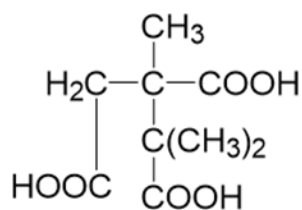
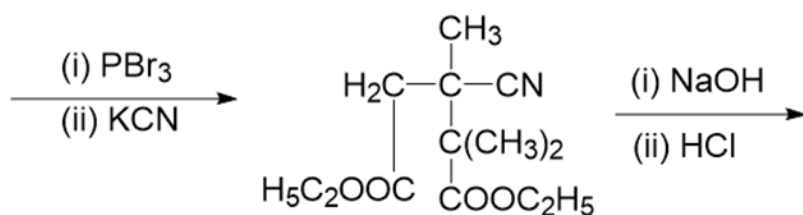
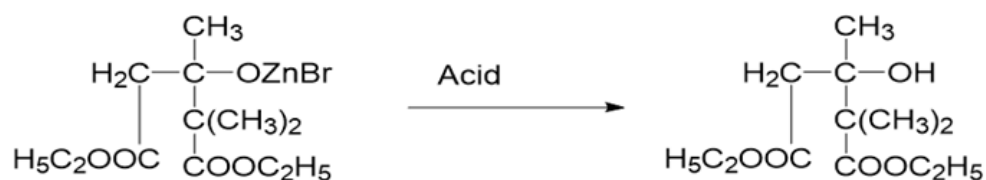
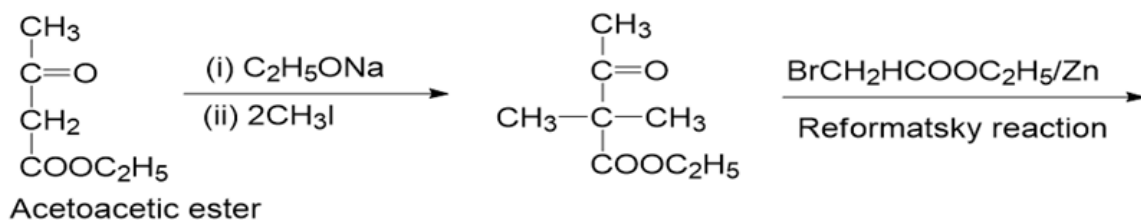
- Step II-Conversion of 3,3-dimethyl glutaric ester into camphoric acid





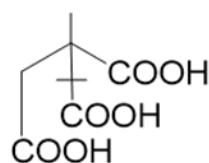
➤ **Synthesis of Camphoronic acid**

✓ This was given by Perkin Junior and Thorpe.



Camphoronic acid

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(±)-Camphoronic acid