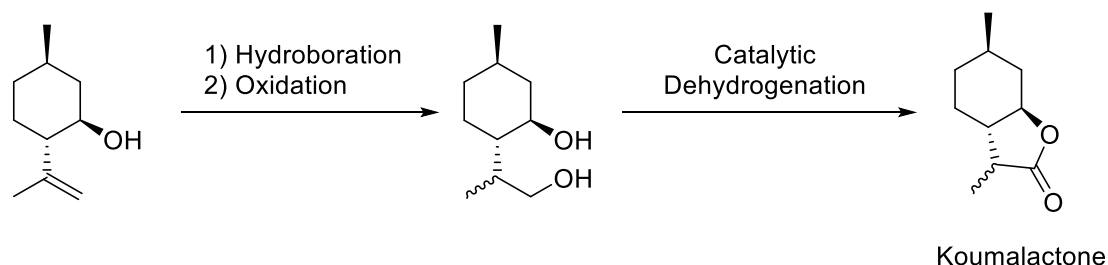


## Process Research and Industrialization of a powerful coconut-scented fragrance ingredient using safe and economical Hydroboration and Homogeneous Catalytic Dehydrogenation.

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Koumalactone is an extremely powerful fragrance and flavor ingredient used since 1997 with a strong coconut, coumarine, and tonka bean scent. <sup>[1-2]</sup> The original synthesis involved a catalytic oxidative rearrangement in the gas-phase using a specific Cr/Cu-catalyst. When the production of this catalyst was discontinued, we were forced to rethink the synthesis of Koumalactone.



In this short account, it will be reported our efforts and challenges to develop a new industrial synthesis starting from Isopulegol through a hydroboration/oxidation protocol to give p-menthane-3,9-diol in a safe and economical manner that does not rely on the generation of diborane, followed by acceptorless dehydrogenation under mild conditions, using a catalytic homogeneous Ru-complex. The new process has been successfully industrialized and contributed to improve the overall green chemistry profile of Koumalactone.

[1] Gaudin, J.-M., WO9412143 A2, 1994

[2] Gaudin, J.-M., Tetrahedron (2000), 56(27), 4769