somerization of anacardic acid: A possible route to the synthesis of an unsaturated benzolactone and a kairomone

Abstract

Crystalline unsaturated lactone, 8-hydroxy-3-tridecyl-1*H*-isochromen-1-one (**6**) has been synthesized by isomerization of anacardic acid having heterogeneous alkyl side chains (a mixture of mono-, di-, and tri-unsaturated anacardic acid) (**1**). Hydrogenation of 8-hydroxy-3-tridecyl-1*H*-isochromen-1-one produced a saturated lactone, 8-hydroxy-3-tridecyl-3,4-dihydroisochromen-1-one (**7**). Isomerization of monoene anacardic acid resulted in a crystalline isoanacardic acid, (*E*)-2-hydroxy-6-(pentadec-1-enyl)benzoic acid (**8**) as a major product. This was then metathesized with 2-butene to give 3-prop-1-enylphenol (**10**). Both isomerization reactions used a 1,2-bis(ditertiarybutylphosphinomethyl)benzene modified palladium catalyst. The two products, 8-hydroxy-3-tridecyl-1*H*-isochromen-1-one and (*E*)-2-hydroxy-6-(pentadec-1-enyl)benzoic acid have been crystallographically characterized.