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Green Chemistry Reactions in Duhok City : Part II .

Rose Bengal Solar Photosensitized Synthesis of

Myrtenol

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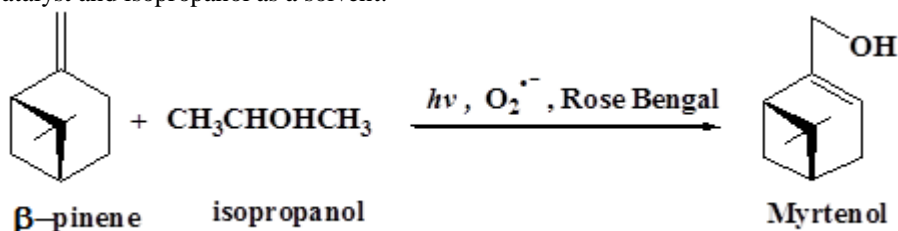
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Abstract. Myrtenol is produced industrially by Symrise in Germany and is used as a fragrance likewise; it has an antipyretic effect on the fever induced by 2,4 -dinitrophenol or yeast. Myrtenol is used as an insect attractant with potential use in lure-and-kill traps for plantation pest control and as a flavoring agent. Due to these important properties of myrtenol , it is worthwhile to investigate the synthesis of myrtenol by a green reaction . Green reactions are important because they keep the environment clean. Photooxygenation of β -pinene was conducted under solar radiation with oxygen in the presence of rose bengal as a catalyst and isopropanol as a solvent.



The mechanism suggests an addition reaction of radical cations derived from the electron donor β -pinene and other electron rich molecules superoxide in the presence of photoexcited electron acceptor constituent (rose bengal). These conversions require highly polar media as in our case isopropanol to aid in ion dissociation. The yield of myrtenol was found to be (81.4%) and the required time for reaction completion was six hours. Both yield and reaction time are much better than literature reported the synthesis of myrtenol by halogen lamp with yield (74%) and reaction time of (138) hours . The reaction also gave trans-pinocarvol. The calculated selectivity of myrtenol and of trans-pinocarvol were (44.25%) and (55.74%) respectively. When the same reaction was repeated on pine oil as a source of β -pinene , the reaction time was also six hours, but the yield was higher than 100% this is due to the involvement of α -pinene , which is also found in pine oil, in the photooxygenation reaction to give myrtenol. The selectivity of the second reaction was similar to the first and trans-pinocarveol was also detected. Myrtenol was identified by GC, IR and other chemical reactions .