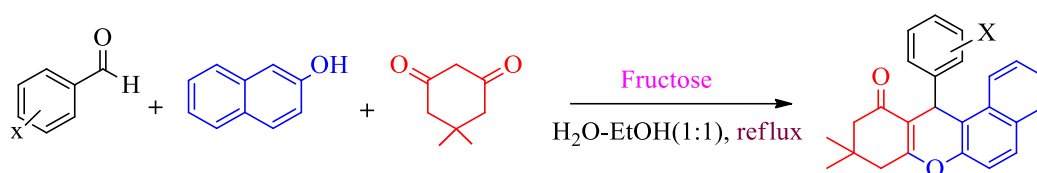


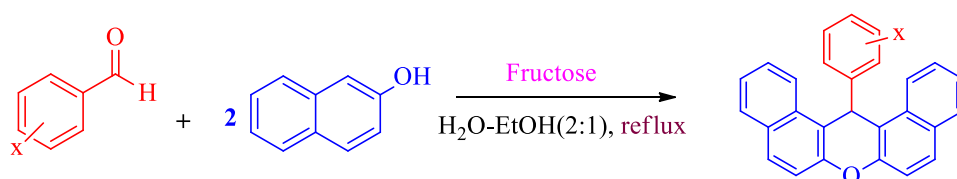
## Abstract

Synthesis of xanthene is important because of its extensive biological and therapeutic properties such as anti-bacterial, anti-viral and anti-inflammatory. In addition, due to its range of valuable spectral properties, it is used as pigment in the laser industry, and as fluorescence material for the detection of biological molecules. Although several methods for the synthesis of xanthene have been reported, but due to the disadvantages such as a low efficiency, long reaction time, use of large amounts of catalyst, and the use of hazardous organic solvents makes considering a different approach necessary. Hence, taking in to account the importance of xanthene and the principles of green chemistry, the use of sulfonating fructose in this project as a new catalyst, non-toxic and effective for benzaldehyde, 2-Naphthol and Dimedone for the synthesis of Tetrahydrobenzo[a] xanthene-11-oun and aldehyde reaction and 2-naphthol for synthesis of (14H) Dibenzo [a,j] xanthene has been used.

Synthesizing of Tetrahydrobenzo[a] xanthene-11-oun derivatives in the presence of sulfonating fructose under reflux conditions in water / ethanol:



Synthesizing of 14H- dibenzo[a,j] xanthene derivatives in the presence of sulfonating fructose under reflux conditions in water / ethanol:



The advantages of this approach are: the use of available, cheap and non-toxic catalysts, high efficiency, and an easy way to test with less pollution.

**Keywords:** Xanthene, Green Chemistry, green catalyst, multi-component reactions



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Title:

**Xanthenes synthesis in the presence fructose and sulfonated  
fructose as green catalys**

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