

Synthesis and Spectroscopic characterization of 1-(2'-hydroxyphenyl)-3-hydroxy-3-(4-methoxyphenyl)-propan-1-one.

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Introduction

Among the many compounds with very important applications recently reported we can see many of them are organic compounds. They have been researched so much for being very promising in the application of nonlinear optics (NLO) and also for their biological activity^{1,2}. In this work, we report the preparation and structural elucidation of compound, 1-(2'-hydroxyphenyl)-3-hydroxy-3-(4-methoxyphenyl)-propan-1-one of chemical formula C₁₆H₁₆O₄. The title compound was obtained in our laboratory and then its crystalline structure was identified by X-ray diffraction. The spectroscopy investigation has been carried out by Raman technique. The assignments of vibrational modes and detailed synthesis information also are presented.

Results and Discussion

The synthesis of the compound was obtained in a flat-bottomed flask (250 mL), was added 20 mL of methanol, 3g of 2-hydroxy acetophenone, 10 mL of sodium hydroxide solution (10%), and 3ml of p-anisaldehyde. The reaction mixture was kept under stirring at 80°C for 4h. After this period, acidification with acetic acid (5%) and extraction with chloroform were done. This solution was washed with distilled water (3 times) and dried with anhydrous Na₂SO₄, filtered and evaporated, quantitatively providing a liquid material from which a colorless crystalline solid material (0.2g) precipitated.

The Fig 1. Show experimental Raman Spectro in the range 400-1800 cm⁻¹. We assigned the peaks in the Raman spectrum by comparison with references for the spectra of other molecules. The carbonyl group produced very intense peak at 1635 cm⁻¹ and also two other lower intensity modes at 1573 cm⁻¹ and 1611 cm⁻¹. The three last modes are mixed with other species of vibrations. Aromatic C-H vibrational peaks due out-of-plane bending vibrations are evident at 832 cm⁻¹. Stretching vibrations C-C in the phenyl rings were observed in

the spectrum at 1036, 1071, 1181, 1316 and 1336 cm⁻¹. In the spectrum at 446, 567, 639, 723, 794 and 867 cm⁻¹ we observed vibrations associated with rings deformations.

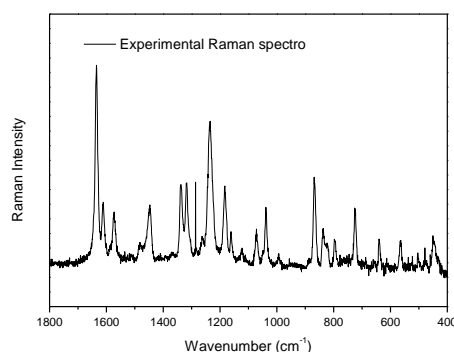


Figure 1. Experimental Raman Spectro in the spectral range from 400-1800 cm⁻¹.

Conclusions

Synthesis information of compound 1-(2'-hydroxyphenyl)-3-hydroxy-3-(4-methoxyphenyl)-propan-1-one was presented here. The spectroscopy investigation has been carried out by Raman spectroscopy. The assignment of each normal modes was done based on basis of literature survey. This study furnish description of vibrational properties of this material.

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