

Synthesis and Raman spectra of various chalcones

Pôster 077

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Keywords: Raman, nonlinear optics, antimitotic

Introduction

Chalcones derivatives compounds have been researched so much for being very promising in the application of nonlinear optics (NLO)¹ and also for their biological activity, including antimitotic potency and cancer chemopreventin agents². Chalcones may have substantial potential for the treatment of cutaneous leishmaniasis³. The synthetic chalcones were 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 synthetic chalcone was obtained in a round-bottomed flask (125 mL), placed in an ice bath, was added 15 mL of methanol, 2-hydroxy acetophenone (7.26 mmol; 1.38 g), 10 mL of 10% sodium hydroxide solution, and *ortho*, *meta* or *para*-anisaldehyde (7.93 mmol, 1.08 g) resulting in three isomers of flavanones of chemical formula C₂₀H₁₆O₃. The reaction mixture was kept under magnetic stirring at 80°C for 4h. After this period, acidification with acetic acid (5%) and extraction with chloroform were done. The solvent was then dried and evaporated.

Raman spectra of various chalcones were obtained. The Fig 1. Shows sample of experimental Raman spectra of synthetic chalcones in the range 100-1800 cm⁻¹. We assigned the peaks in the Raman spectra by comparison with references for the spectra of other molecules.

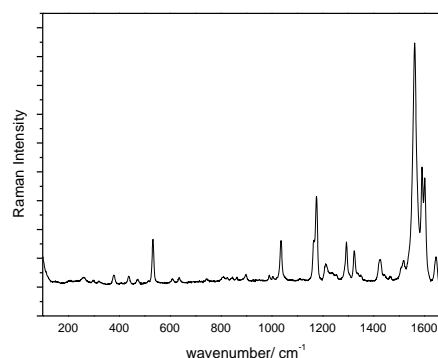


Figure 1. Experimental Raman Spectro in the spectral range from 100-1800 cm⁻¹ of synthetic chalcone.

Conclusions

Synthesis information of synthetic chalcones was presented here. The spectroscopy investigation has been carried out by Raman spectroscopy. The assignment of each normal mode was done based on basis of literature survey. This study furnishes description of vibrational properties of various chalcones crystals.

Acknowledgments

The authors acknowledge the financial support from the Brazilian agencies CNPq and CAPES

¹Fichou, D., Watanabe, T., Takeda, T., Miyata, S., Goto, Y. & Nakayama, M. (1988). Jpn J. Appl. Phys. 27, L429-L430.

²Bertl, E., Becker, H., Eicher, T., Herhaus, C., Kapadia, G., Bartsch, H. & Gerhauser, C. (2014). Biochem. Biophys. Res. Commun. 325, 287-295.

³Mello, T. F.P., Cardoso, B. M., Lopes, S. N., Bitencourt, H. R., Voltarelli, E. M., Hernandez, L., Aristides, M. A., Lonardon, M. V. C., Silveira, T. G. V., (2015). Parasito Res. 114:3587-3600