



**PROGRAMS AND BIBLIOGRAPHY**

Subject	
Code	Name
QO623	Experimental Organic Chemistry

Vector
OF:S-1 T:002 P:000 L:004 O:000 D:000 HS:006 SL:006 C:006 AV:N EX:S FM:75%

Pre requirement
QO321

Summary
Experiments encompassing acid-base extraction, isolation of natural products, preparation of organic compounds and drugs, basic knowledge of isolation, purification and characterization of synthesis products by spectroscopic means such as infrared and ultraviolet spectroscopies, nuclear magnetic resonance and mass spectrometry. Chromatographic methods. Principles of organic analysis. Projects concerning organic synthesis and natural products.

Program
<ul style="list-style-type: none"><li>- Presentation of the course: evaluation, calendar of activities, safety in the laboratory, equipment and glassware.</li><li>- Separation of a complex mixture (extraction and thin layer chromatography - CCD).</li><li>- Synthesis of an analgesic (paracetamol), crystallization and thin layer chromatography (CCD).</li><li>- Extraction of an essential oil (limonene) by steam drag, gas chromatography and infrared spectroscopy.</li><li>- Organic analysis: melting and boiling points, sodium fusion and functional group characterization tests and analysis of an unknown sample.</li><li>- Electrophilic aromatic substitution (nitration): separation of the products by column chromatography.</li><li>- Synthesis of a lactone, purification and chromatographic and spectroscopic analysis.</li><li>- Extraction and synthesis of drugs (analgesic and antitussive) and chromatographic and spectroscopic analyzes.</li><li>- Separation of enantiomers by chemical resolution and chromatographic analysis.</li><li>- Introduction to infrared and nuclear magnetic resonance (NMR) spectroscopy.</li></ul>

Bibliography
<ol style="list-style-type: none"><li>1) Pavia, D. L.; Lampman, G. M.; Kriz, G. S; Engel R. G.; <i>Introduction to Organic Laboratory Techniques</i>, 3<sup>a</sup> ed., Saunders, Philadelphia, 1999.</li><li>2) Pávia, D. L.; Lampmann, G. M.; Kriz, G. S.; <i>Introduction to Organic Laboratory Techniques, A Contemporary Approach</i>, 2<sup>a</sup> ed., Saunders, Philadelphia, 1982.</li><li>3) Vogel, A. I.; <i>Textbook of Practical Organic Chemistry</i>, 5<sup>a</sup> ed., Longman, London, 1989.</li><li>4) Solomons, T. W. G.; Fryhle, C. B.; <i>Organic Chemistry</i>, 7<sup>a</sup> ed. John Wiley &amp; Sons, New York, 2000.</li></ol>

- 5) Carey, F. A.; *Organic Chemistry*, 3<sup>a</sup> ed., McGraw-Hill, New York ,1996.  
6) Pavia, D. L.; Kriz, G. S.; Engel, R. G.; *Introduction to Spectroscopy*, 2<sup>a</sup> ed., Saunders, Philadelphia, 1996.

**Evaluation criteria**

For grading policy, see: Regimento Geral de Graduação, Seção I – Normas Gerais, Capítulo V – Da Avaliação do Aluno na Disciplina. Students are required to attend 75 % of the lectures.  
For further details, see: Regimento Geral de Graduação, capítulo VI, seção X, artigo 72.