

COLD PLASMA OLIGOMERIZATION IN ARGON ATMOSPHERE FROM CARVACROL: PRODUCT FORMATION AND CHARACTERIZATION

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Carvacrol, a monoterpenoid sourced from sustainable materials like oregano, has been studied for its oxidation into compounds of increased value. This oxidation process employs a range of catalysts and oxidizing agents. Cold plasma oligomerization of carvacrol in an argon atmosphere presents an alternative to catalytic methods. From 3 mL of carvacrol, 46 mg of solid product (Pcrol) were obtained, achieving a $35 \pm 0.5\%$ of selectivity. Surface examinations reveal a hydrophobic material with a meshed texture, while chemical characterization confirms the retention of functional groups, successful plasma oligomerization, and provides insights into the reaction mechanism. The results identify Pcrol as an oligomer and thermal analysis suggests it decomposes below 300 ± 2.11 °C, likely due to its shorter oligomer chains.

Keywords: carvacrol, cold-plasma, oligomer

Acknowledgment:

The authors wish to express their gratitude for the financial support received for this paper in the form of a postdoctoral fellowship (grant 347182) from the National Council for Humanities, Science, and Technology (CONAHCYT). They would also like to extend thanks to M. García Zamora, G. Rodríguez Rojas, B. Reyes Vielma, G. Mendez Padilla, Pablo Acuña-Vázquez and H. Maldonado Textle for their invaluable technical assistance with several of the analytical methods employed in this study. Additionally, the authors are thankful for the insightful remarks provided by O. Pérez Camacho from the Research Center in Applied Chemistry (Centro de Investigación en Química Aplicada) concerning this research.

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