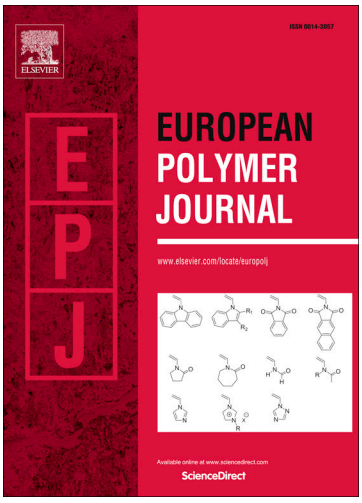

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PII: S0014-3057(18)30686-4
DOI: https://doi.org/10.1016/j.eurpolymj.2018.07.032
Reference: EPJ 8494

To appear in: *European Polymer Journal*

Received Date: 10 April 2018
Revised Date: 2 July 2018
Accepted Date: 21 July 2018

Please cite this article as: Rodrigues, R.R., Raminelli, C., Péres, L.O., A mild and efficient method to prepare oligophenylenes (PPPs), *European Polymer Journal* (2018), doi: https://doi.org/10.1016/j.eurpolymj.2018.07.032

A mild and efficient method to prepare oligophenylenes (PPPs)

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Abstract

In the present work we developed a practical, faster, and more sustainable way to prepare conjugated materials, derived from poly-*p*-phenylenes (PPPs), using 10% palladium on carbon as catalyst and distilled water as solvent under microwave heating for 3 hours. The oligomers were also prepared by the classical Suzuki reaction to enable a comparison of results. All materials were characterized by nuclear magnetic resonance (NMR), infrared (IR), absorption and emission analysis, gel permeation chromatography (GPC), and thermogravimetric analysis. The polymers prepared by the alternative method were obtained in higher yields than the polymers produced by the classical Suzuki reaction. In addition, characterization data showed no significant differences in terms of molecular structures and luminescent properties between the polymers synthesized through the different protocols. Therefore, the alternative method developed was considered appropriated for the synthesis of PPPs derivatives.

Keywords: polymer, conjugated polymer, palladium, Suzuki reaction, sustainable.