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Microwave-assisted continuous flow for the selective oligomerization of glycerol

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PURPOSE OF THE ABSTRACT
The design of environmentally friendly methodologies has been the driving force of scientists in recent years. In particular, the use of biomass-derived materials, green solvents and continuous flow as an alternative technique has been investigated. In this regard, glycerol has the potential to be both an excellent renewable solvent in modern chemical processes and a versatile building block in biorefineries [1]. Various chemical transformations such as oxidation, hydrogenolysis, etherification, esterification, dehydration and oligomerization can be executed to create a large number of value-added chemicals with specific applications in the polymer, agrochemical, and pharmaceutical industries. In recent years, flow chemistry offers significant processing advantages compared to the traditional batch chemistry; the main improvements being thermal management, mixing control, adaptation to a wider range of reactions conditions, scalability, energy efficiency, waste reduction, safety, use of heterogeneous catalysts, multi-step synthesis, among others. Recent advances in microwave-assisted continuous oligomerization of glycerol using different types of catalysts and processes will be highlighted [2].

FIGURES

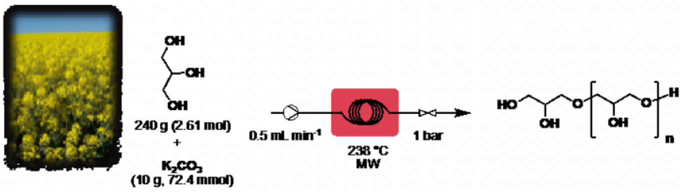

FIGURE 1

Scheme 1

Microwave-assisted continuous oligomerization of glycerol with potassium carbonate

FIGURE 2

KEYWORDS

Glycerol | Polymer | Flow chemistry | Microwave

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