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## Synthesis of 9,10-bis(organochalcogenyl)phenanthrenes by cyclization of (biphenyl-2-alkyne)chalcogenides

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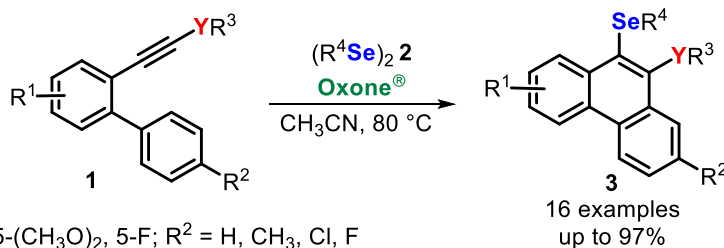
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### ABSTRACT

A fairly large number of phenanthrenes are found in nature and most of them have important applications in medicinal chemistry.<sup>1</sup> In the other hand, studies on the synthesis of organochalcogen compounds, especially those with at least one sulfur, selenium or tellurium atom in their structure, have been intensively explored in organic chemistry.<sup>2</sup> This fact occurs due to the promising properties that these molecules present, such as intermediates in organic synthesis, catalysts and, mainly, due to their pharmacological activities.<sup>3</sup>

In this way, a protocol was developed for the synthesis of 9,10-bis(organochalcogenyl)phenanthrenes through a radical cyclization of (biphenyl-2-alkyne)chalcogenides in the presence of diorganyl diselenides, Oxone<sup>®</sup> as a green oxidizing agent, and acetonitrile at 80 °C. This study exhibits high regioselectivity, is operationally simple and scalable, allowing the synthesis of 16 compounds in yields of up to 97% and in short reaction times (1-4 h).<sup>4</sup>



● regioselective ● green oxidizing agent ● metal-free ● short reaction times: 1-4 h

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