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BRAZILIAN MEETING
ON ORGANIC SYNTHESIS
BENTO GONÇALVES, RS - BRAZIL

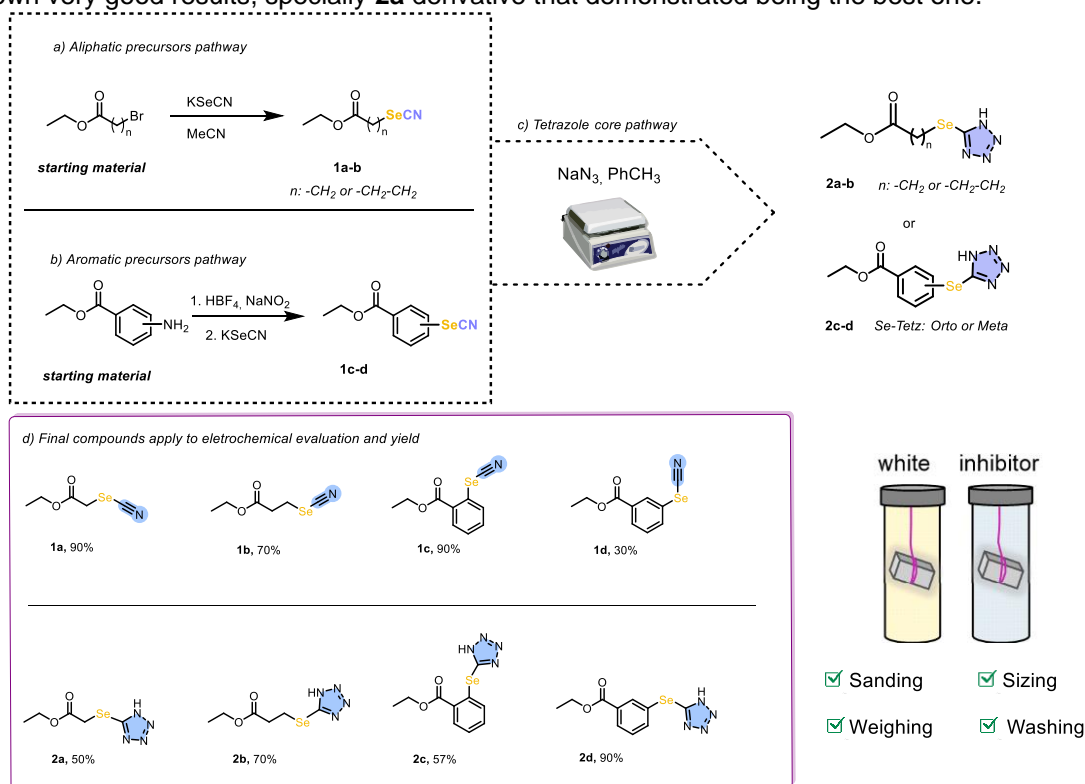
Synthesis and Characterization of Highly Efficient Anticorrosive Organoselenium Derivatives Containing 1H-Tetrazole Nucleus

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ABSTRACT

Corrosion is the spontaneous degradation of metallic materials due to environmental interaction. One main protection method for metal alloys is using organic corrosion inhibitors¹. Compounds with heteroatoms (N, O, S) and π electrons enhance adsorbent properties on metal surfaces by donating electron pairs to empty d orbitals, forming protective layers¹. Also, organoselenium² compounds are promising anticorrosives due to their strong bond formation with metals. Thus, this work aims to synthesize and evaluate organoselenium 1H-tetrazole derivatives to evaluate the anticorrosive effects. The precursors **1a-d** (SeCN) were synthesized by combining the portion "SeCN" to the aliphatic (Scheme 1a) and aromatic (Scheme 1b) classes. The protocol used was based in two different methods: an SN2 reaction with bromides for aliphatic compounds and diazonium salt formation for aromatic compounds. The tetrazole³ nucleus formation (Scheme 1c) was consistent for all SeCN precursors. By this way was possible to achieve 4 SeCN molecules and 4 tetrazole derivatives in excellent yields ranging from 30 to 90%. All these molecules were evaluated as anticorrosive and shown very good results, specially **2a** derivative that demonstrated being the best one.



Scheme 1. A) Aliphatic precursors pathway B) Aromatic precursors pathway C) Tetrazole core pathway D) Final compounds

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