Synthesis of new selanylesters glycerol derivatives by Rongalite/PEG-400 medium.

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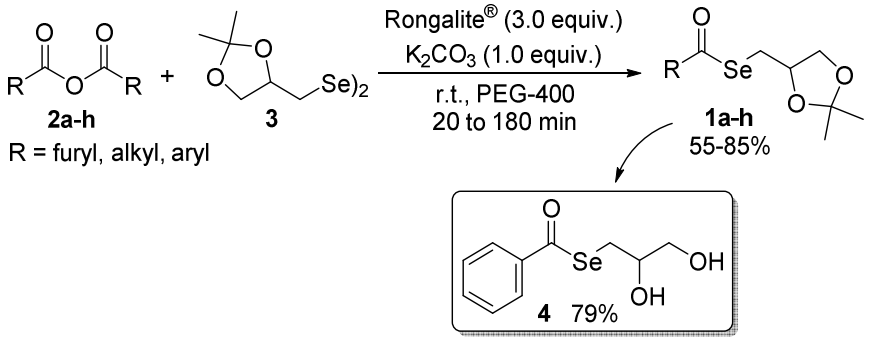
Glycerol has emerged in the last years as both a solvent and a reagent for green chemistry. In this sense, five membered cyclic ketals, which are synthesized by the reaction of the terminal and central hydroxyl groups of the glycerol with a ketone, have many applications, especially their use as an additive for fuels and solvents, and as intermediates in pharmaceutical industry. [1] In parallel, selenol esters are important intermediates in organic synthesis, as well as have interesting biological activities. They have been used as precursors of acyl radicals and anions, [2] intermediates in the synthesis of ketones, [3] as building blocks of heterocyclic compounds [4] and various cyclization reactions. [5-6] In recent years, our group have reported new derivatizations of this ketal, including the preparation of chalcogen-containing analogs of solketal through the sustainable chemistry. As a continuation of our studies, [7] a green method for the synthesis of new glycerol-derivatives selenol esters **1** was developed by reactions between several anhydrides **2** and bis-(2,2-dimethyl-1,3-dioxolanylmethyl)diselenide **3** using Rongalite® (sodium hydroxymethanesulfinate dehydrate, $HOCH_2SO_2Na$), K_2CO_3 and polyethylene glycol-400 (PEG-400) as the solvent. These reactions were efficiently conducted under mild conditions, employing stable and non-hazardous starting materials and in short reaction times (20-180 min), affording the corresponding semi-synthetic selenol esters **1** in moderate to good yields (55-85%) at room temperature. Further, it was demonstrated that the deprotection of the ketal protecting group of the selenol ester **1**, with acid cation-exchange resin Dowex®50WX8, produces the water-soluble selenol ester **4.** [8]



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