

A facile and efficient synthetic approach to novel lariat macrocyclic diamides and bis macrocyclic diamides

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Abstract

The hydroxy macrocycles 8, 19a-c were prepared in 40–55% yields by reacting the dipotassium salts 2a-c with each of epichlorohydrin (7) and bis(chloromethyl) derivative 18. Acylation of the hydroxyl group of each of 8, 19a-c with 2-chloroacetylchloride (9) in DMF gave the corresponding esters 10, 20a,b. Reaction of the latter with different amines as well as phenoxides furnished exclusively the target lariat macrocycles 13a-c, 22a-c and 23a-c in 60–63% and 50–55% yields, respectively. Amination of two equivalents of the chloroacetyloxy derivative 10 and 2a,b with 1 equiv. of piperazine (12c) afforded the corresponding bismacrocycles 14 and 26a,b respectively, in 60–65% yields. Moreover, the novel bis(macrocycle)s 27–29 were prepared in 45–50% yields, respectively, by reacting each of 20a,b with the dipotassium salts 2b, 24 and 25 respectively, in DMF.

Keywords: DMF, bismacrocycles, underwent alkylation.

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