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Tandem intramolecular Pinner–Dimroth rearrangement assisted synthesis of fully-functionalized new selenopheno[3,2-*d*]pyrimidine heterocycles

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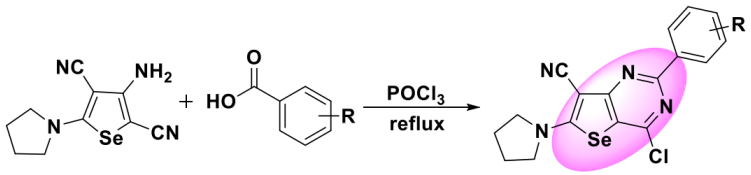
Heterocyclic condensed pyrimidines have attracted considerable attention due to their interesting biological properties. On the other hand, based on the variety of biological benefits associated to the presence of selenium, many protocols such as one-pot four-step sequential procedure [1], Cu-catalyzed cyclization [2], Se-metal exchange [3,4], microwave assisted seleno-clasien rearrangement and free radical condition [5] have been developed for the synthesis of selenophene scaffolds. Due to widespread biological activities of selenophenes and our interest for the synthesis of selenophenocondenced heterocyclic systems, we report an alternative procedure for the synthesis of various derivatives of selenopheno[3,2-*d*]pyrimidine via intramolecular Pinner–Dimroth rearrangement. These potential biologically active derivatives (3a-m) were synthesized through heterocyclization of synthetic 3-amino-5-(pyrrolidin-1-yl)selenophene-2,4-dicarbonitrile (1) with several commercially available benzoic acids (2a-m) in the presence of phosphoryl oxychloride in excellent yields. The products were characterized on the basis of spectral and microanalytical data.

Keywords: Selenophene, Selenopheno[3,2-*d*]pyrimidine, Pinner–Dimroth rearrangement, Heterocyclization



(1) (2a-m) (3a-m)

R: H, *o*-Cl, *m*-Cl, *p*-Cl, *o*-Br, *o*-I, *m*-OCH_3, *m*-CH_3, *p*-CH_3, *m*-NO_2, *p*-NO_2, *p*-CN, *o*-OH

References

[5] D. Thomae, E. Perspicace, D. Henryon, Z. Xu, S. Schneider, S. Hesse, G. Kirsch and P. Seck, *Tetrahedron,* **2009**, 65, 10453
[6] R. F. Schumacher, A. R. Rosario, M. R. Leite and G. Zeni, *Chem. Eur. J.*, **2013**, 19, 13059
[7] V. A. D'yakonov, A. G. Ibragimov, L. M. Khalilov, A. A. Makarov, R. K. Timerkhanov, R. A. Tuktarova, O. A. Trapeznikova and L. F. Galimova, *Chem. Heterocycl. Compd.*, **2009**, 45, 317
[8] T. M. Klapotke, B. Krumm, M. Scherr and Z. Anorg, *Allg. Chem.*, **2010**, 636, 1955
[9] S. Kumar, H. Johansson, L. Engman, L. Valgimigli, R. Amorati, M. G. Fumo and G. F. Pedulli, *J. Org. Chem*., **2007**, 72, 2583