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One-pot Synthesis of 2-seleno-4-methylquinoline

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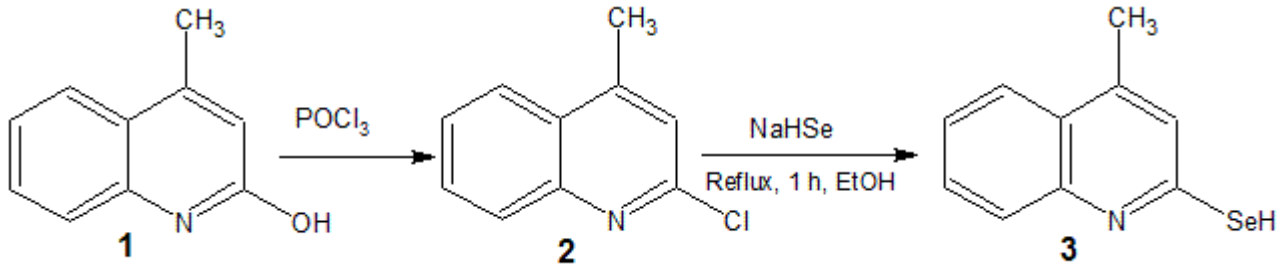
Number of workers has reported the synthesis of condensed fused quinoline derivatives containing selenium atom and studied for their DNA binding, cytotoxic, anticancer and antitumour activities [1-3]. The reported ring system of interest because of close relationship with anticancer alkaloid ellipticine [4]. Therefore, the development of organoselenium compounds with higher anticarcinogenic efficacy but better tolerance continues to be a priority in chemotherapy research. So, we have tentatively identified these 2-selenium-4-methylquinolines as new member of the class of antitumour drug and starting material for the synthesis of many *tri*- and *tetra* cyclic planar molecules. We herein report facile, eco-friendly and one-pot synthesis of 2-seleno-4-methylquinoline from 2-chloro-4-methylquinoline.



The synthesis of 2-hydroxy-4-methylquinoline and 2-chloro-4-methylquinoline were prepared according to literature procedure [5].

A mixture of 2-chloro-4-methylquinoline 2 (1.58 g, 1 mmol) and NaHSe (1 g, 1 mmol) was refluxed at 80-90 ^{o}C in presence of ethanol (5 ml) for 1 h. The completion of the reaction was monitored by TLC eluting the phase ethyl acetate: carbon tetrachloride (80:20). The reaction mixture was poured in to crushed ice (25 gm). The product was filtered, washed with water, dried and was pure enough for further use. The obtained compound was characterised by elemental analysis, IR, ^{1}H NMR, ^{13}C NMR and mass spectral data. The 2-seleno-4-methylquinoline 3 has a yellow, solid powder, yield 80 %.

Melting Point: 170-173 ^{oC}

IR (KBr, cm^{-1}): n 1558 (C=N); n 1634(C-SeH).

^{1}H-NMR ($CDCl_3$, 250 MHz): d = 2.63 (3H, s, CH_3), 6.38-7.28 (5H, m, Ar), 10.8 (1H, s, SeH).

^{13}C-NMR ($CDCl_3$, 67.5 MHz): d = 126.0, 127.4, 127.9, 128.0, 130.4, 140.0, 142.2, 143.0, 149.5, 153.5.

Mass Spectra (relative intensity): m/z ($M^{\cdot+2}$) = 222

Elemental Analysis: Calculated for $C_{10}H_9NSe$: C: 54.07, H: 4.08, N: 6.31, Se: 35.54 Found: C: 54.05, H: 4.07, N: 6.29, Se: 35.52.

References

1. Gopal, M.; Veeranna, S.; Doddamani, L.S. *Spectroscopy Letters* **2004**, *37*, 347.
2. Gopal, M.; Shahabuddin, M.S.; Inamdar, S.R. *Indian Acad. Sci. (Chem. Sci)*. **2002**, *114*, 687.
3. Ravikumar Naik, T.R.; Bhojya Naik, H.S.; Raghavendra, M.; Gopalkrishna Naik, S.R. *ARKIVOC* **2006**, *15*, 1.
4. Frei, E.; Bieler, C.A.; Arlt, V.M.; Wiessler, M.; Stiborova, M. *Biochem. Pharmacol.* **2002**, *64*, 289.
5. Bhojya Naik, H.S.; Ramesh, S.; Swetha, B.V.; Roopa *Phosphorus Sulfur Silicon Relat. Elem.* **2006**, *181*, 533.