البحث الرابع (رقم 4 في قائمة البحوث المقدمه للترقيه و30 في قائمة البحوث الكلية)

Title	The first Q-Tube based high-pressure synthesis of anti-cancer active thiazolo[4,5-*c*]pyridazines *via* the [4+2] cyclocondensation of 3-oxo-2-arylhydrazonopropanals with 4-thiazolidinones أول توليف عالي الضغط يعتمد على مفاعل الضغط للثيازولو[4،5-ج] البيريدازين النشط المضاد للسرطان عبر [4 + 2] التكثيف الحلقي لـ 3-أوكسو-2-أريل هيدرازونوبروبانالس مع 4-ثيازوليدينون
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Abstract:

A novel and efficient protocol for the synthesis of thiazolo[4,5-*c*]pyridazine derivatives was developed. The approach utilizes a high pressure Q-Tube reactor to promote cyclocondensation reactions between 3-oxo-2-arylhydrazonopropanals and 4-thiazolidinones. The process has a significantly high atom economy and a broad substrate scope, as well as being applicable to gram scale syntheses. The *in vitro* cytotoxic activities of the synthesized thiazolo[4,5-*c*]pyridazine derivatives were examined utilizing a MTT colorimetric assay with doxorubicin as a reference anti-cancer drug and three human cancer cell lines including HCT-116 (colon), MCF-7 (breast) and A549 (lung). The results show that thiazolopyridazines 7c, h, k and p have high cytotoxic activity against the MCF-7 cell line with respective IC50 values of 14.34, 10.39, 15.43 and 13.60 µM. Moreover, the thiazolopyridazine derivative 7s also show promising cytotoxic activity against the HCT-116 cell line with IC50 = 6.90 µM . Observations made in this effort serve as a basis for further investigations into the design and preparation of new anti-cancer drugs.