



Indian Journal of Chemistry
Vol. 63, August 2024, pp. 764-769
DOI: 10.56042/ijc.v63i8.8005

National Institute of Science Communication and Information Research
NIS⁺PR
सीएसआईआर-निसप्र

Synthesis, spectral analysis and anti cancer activity of (E)-2-(4-((1-phenyl-1H-1,2,3-triazol-4-yl)methoxy)phenyl)-1-(benzo[d]thiazol-2-yl)diazene

Guttikonda Manasa & Satheesh Kumar Nukala*

Department of Chemistry, Chaitanya (Deemed to be University) Hanumakonda, Telangana 506 001, India

E-mail: satheeshkumar.n.9@gmail.com

Received 12 January 2024; accepted (revised) 29 July 2024

The present work provides a comprehensive guide to the design and high-yield synthesis of 1,2,3-triazole derivatives employing a wide range of chemicals, bases, and catalysts. The methodology is simple, efficient, and effective. Amide coupling reagents have been developed that are more convenient, milder, and allow for higher selectivity under mild reaction conditions. Benzo[d]thiazol-2-amine (I) treated with NaNO_2/HCl gives diazonium salt (II) and compound (II) reacts with phenol to give intermediate (III). To get phenoxide compound (IV) compound (III) is treated with $\text{K}_2\text{CO}_3/\text{DMF}$. To get (E)-1-(benzo[d]thiazol-2-yl)-2-(4-(prop-2-ynyl)oxy)phenyl)diazene (V), compound (IV) is treated with 3-bromoprop-1-yne. Derivatives of (VIa-p) are obtained when compound (V) is treated with aniline and CuI/THF . The derivatives of (VIa-p) have shown moderate to excellent efficacy when tested for anticancer properties against several cancer cell lines. The MCF-7 cell line is the most resistant to compounds **6a** and **6e**, with an IC_{50} value of 1.92 and 1.99 μM respectively. The structures of the newly synthesized compounds have been established by ^1H and ^{13}C NMR, IR, and ESI-HRMS.

Keywords: Triazole, Benzothiazol, Molecular docking, Anticancer activity