

**ANTIMICROBIAL AND ANTIOXIDANT ACTIVITY OF UREA/ THIOUREA
DERIVATIVES OF 5-METHYL-3-(UREDIO METHYL)-HEXANOIC ACID**

Kollu Umapriya¹, Avula Vijaya Kumar Reddy², Vallela Swetha³, Grigory Vasilievich Zyryanov^{3,4}, Chamarthi Naga Raju^{1,*}

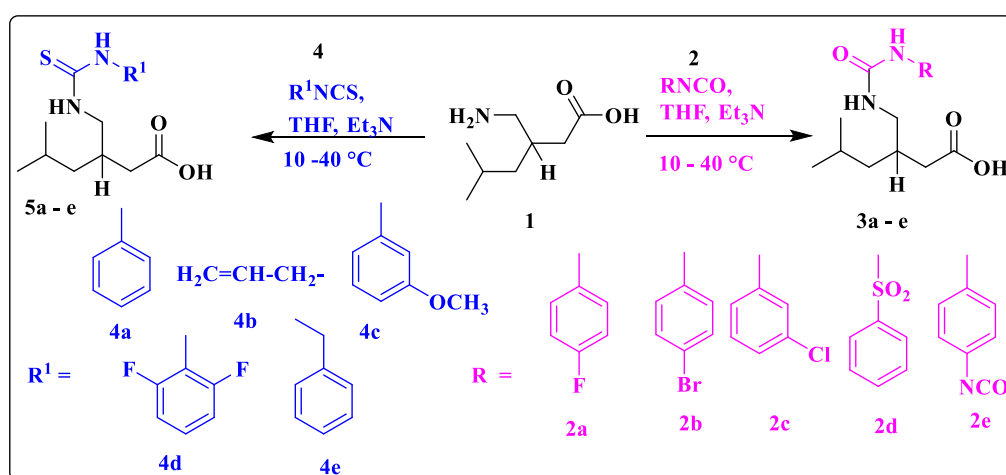
¹Department of Chemistry, Sri Venkateswara University, Tirupati - 517502, India

²Chemical Engineering Institute, Ural Federal University, Yekaterinburg 620002, Russian Federation

³Ural Division of the Russian Academy of Sciences, Ya. Postovskiy Institute of Organic Synthesis, 22 S. Kovalevskoy Street, Yekaterinburg 620219, Russian Federation.

*Corresponding Author: rajuchamarthi10@gmail.com

A series of urea/ thiourea derivatives of 5-methyl-3-(urediomethyl)-hexanoic acid has been successfully synthesized from the reaction of 3-aminomethyl-5-methylhexanoic acid and aryl isocyanate/ aryl isothiocyanates in presence of triethylamine base in tetrahydrofuran solvent at rt-40°C by stirring the contents for 3h (**Scheme 1**).



Scheme 1: Synthesis of urea/ thiourea derivatives of 3-aminomethyl-5-methylhexanoic acid

The synthesized compounds were screened for antioxidant activity by DPPH, Nitric oxide assays respectively and referenced to butylated hydroxyl toluene standards. Similarly, the antibacterial activity is evaluated against gram positive *Bacillus subtilis*, *Streptococcus aureus* & gram negative *Escherichia coli*, *Pseudomonas aeruginosa* bacteria by using disc diffusion method and referenced to streptomycin standards. In addition, the antifungal activity has been evaluated against three plant pathogenic fungi, viz., *Aspergillus niger*, *Aspergillus flavus*, *Candida albicans*, and *Fusarium oxysporum* and referenced *Fluconazole* drug standards and identified that urea derivatives are comparatively more potential than the thiourea derivatives.