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Research Article

Studies on Nitrogen Rich Benzoxazines Containing Schiff Base for Optical, Aggregation Induced Emission and Anti-Microbial Applications

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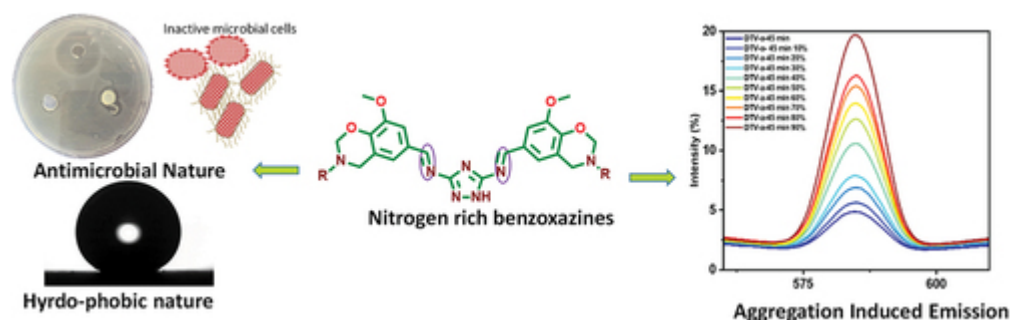
ABSTRACT

Dihydroxy derivative of vanillin-based diaminotriazole core monomer (DTV) has been synthesized using sustainable vanillin (V) and 3,5-diamino-1,2,4-triazole (DT) under appropriate experimental conditions and characterized with a view to develop Schiff base core nitrogen-rich benzoxazines capable of exhibiting excellent optical and anti-microbial properties. The monomer DTV has been subsequently converted into benzoxazines separately using six structurally varied amino compounds, viz. aniline (a), 1-(–2-aminoethyl)piperazine (aep), furfurylamine (ffa), 4-H-1,2,4-triazol-4-amine

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paraformaldehyde through Mannich condensation. The corresponding Schiff base based benzoxazines, viz. DTV-a, DTV-aep, DTV-ffa, DTV-ta, DTV-apy and DTV-api were synthesized and characterized for their molecular structure, thermal stability, optical, hydrophobic and anti-microbial properties using different analytical techniques and methods. Data obtained from different analyses for DTV based benzoxazines can be used for wide range of industrial and engineering applications.

GRAPHICAL ABSTRACT



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Q KEYWORDS: [Anti-microbial property](#) [benzoxazines](#) [hydrophobic behavior](#) [optical properties](#)
[Schiff base](#) [thermal stability](#)

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Disclosure statement

No potential conflict of interest was reported by the author(s).