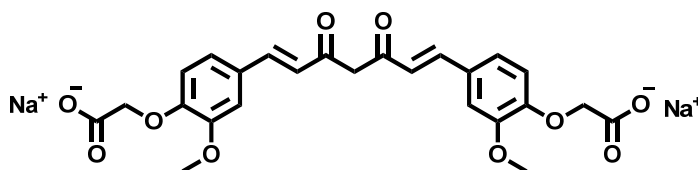


Dr.V.Padmini
Dept.of Organic Chemistry
School of Chemistry
Madurai Kamaraj University
Madurai – 625 021
Mobile : +91-9715248363
Email id: padimini.chem@mkuniversity.org.



Heterocyclic compounds exhibited a wide range of pharmaceutical and biological activities. We have synthesized wide range of heterocyclic compounds by following new methodologies. Curcumin is a familiar natural antioxidant, which possess various biological activities with nontoxic manner. The clinical trials have proved that daily dose of curcumin about 12 g for 3 months has not affected to the humans. Among the various curcumin derivatives, the water soluble curcumin shows better biological activity. Even though the curcumin and their derivatives have many biomedical applications. We have synthesized curcumin disodium acetate and studied its AGE inhibitory activity and type II diabetes, both in vitro and in vivo using animal model.^[1]



Water soluble curcumin drivative.

The second type of work in our laboratory is chemosensor development by optical method using fluorescent curcumin derivatives and heterocyclic compounds for the detection of toxic metal ions and anions such as Arsenic (As^{3+}), Zinc (Zn^{2+}), Fluoride ion (F^-), Cyanide ion (CN^-)^[2, 3] and Picric acid^[4] from the agricultural and industrial waste. Their contamination possess a serious health problem to human body and aquatic living organisms. Consumption of toxic metal ions and chemicals over the permissible limits leading to the keratosis, immunogenic burning, cardiovascular respiratory disorder, watering of eyes, malonosis, weakness and carcinogenic diseases.



In biosensor, fluorescent organic molecules can detect disease causing biomolecules such as perfluorooctanoic acid, cysteine and glutamine in high fluorescent intensity with good low detection limit (LOD) at neutral pH. ^[5]

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