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Development of xanthines as adenosine A_{2A} receptor selective antagonists: A systematic approach towards novel nondopaminergic therapy for Parkinson's diseaseRanju Bansal, Suman Rohilla, K N Klotz and Sonja Kachler
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Adenosine receptors represent a new promising target for the development of various drug candidates for the treatment of a wide range of biological disorders. Currently four AR subtypes A₁, A_{2A}, A_{2B} and A₃ have been recognized and pharmacologically characterized. Adenosine A_{2A} receptor antagonism represents a novel non-dopaminergic approach in the treatment of Parkinson's disease. Substituted xanthines represent the most potent class of adenosine receptor (AR) antagonists reported to date. Xanthine scaffold represents itself as a privileged motif, which offers numerous modifications at 1-, 3-, 7-, and 8-positions for the development of new potent and selective AR ligands. SAR studies have established that the structural modifications at 1- and 3-positions of the xanthine nucleus greatly affect the binding ability of the compounds for adenosine receptors. It has also been observed that the most remarkable alterations in potencies of the xanthines as antagonists of adenosine receptors result from appropriate substitution at the 8-position of this heterocyclic system. The current study describes a systematic approach to design and synthesize a new series of 1,3,7,8-tetrasubstituted xanthines as potent and selective adenosine A_{2A} receptor ligands for the treatment of Parkinson's Disease.

Biography

Ranju Bansal is an active researcher and academician for last 25 years. Presently, she is a Professor at UIPS in Panjab University. She has published more than 80 research articles, has authored 1 book and has 6 patents to her credit. She has been awarded prestigious Commonwealth Academic Staff Fellowship for Post-doctoral studies at University of Strathclyde, UK. She is an active member of various professional bodies and has been designated as deputy coordinator of UGC-CAS programme of UIPS. Recently, she has published research in Chemical Reviews, a highest ranking journal in chemical sciences (Impact factor 45.6). She has been serving as an Editorial Board Member and reviewer of various journals of repute. Her areas of research interest include development of steroids and xanthines based new chemical entities of medicinal significance.

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