

Effect of micellar solubilization technology on the anticancer activity of dasatinib: A study on the in vitro survival of cell lines

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In the present research work micellar solubilization technology has been employed for the formulation development of poorly soluble Dasatinib and its effect is evaluated basing upon the cytotoxic activity. Dasatinib is an oral multi- BCR/ABL and Src family tyrosine kinase inhibitor approved for use in patients with chronic myelogenous leukemia (CML) after imatinib treatment and Philadelphia chromosome-positive acute lymphoblastic leukemia (Ph+ ALL). The formulation development for Dasatinib was done by improving its solubility by micellar solubilization technology. The resulted micellar solution was converted into spray dried powder. The MTT (3-(4,5-Dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay was carried out on Baf3/WT, E255k and K562 for the evaluation of the cytotoxic activity of placebo, pure drug, and formulation. Suitable and equivalent dilutions were made for the three samples to evaluate the effect on the inhibition of cell proliferation by MTT Assay. The IC₅₀ value reveals that formulation of Dasatinib has shown a better inhibition effect on the cell proliferation than that of pure drug which may be due to more uptake of drug into the cells. Moreover, inhibition of Pgp efflux and fluidization of the cellular structure by the surfactant also accounts for the lower IC₅₀ value of formulation on Baf3/WT and E255k. This concludes that micellar solubilization technology employed for the solubility enhancement of Dasatinib has also resulted better inhibitory activity of Dasatinib on cell proliferation.

Biography

P. Durga Maheswari is pursuing Ph.D. entitled "Formulations of poorly water soluble drugs using micellar solubilization technology", from Jawaharlal Nehru Technological University, Hyderabad, AP, INDIA. She had completed M. Pharm in Department of Pharmaceutical Sciences, Andhra University, Visakhapatnam, A.P, INDIA. She is working as Senior Manager, Formulation Research & Development, Natco Research Center, Sanath Nagar Hyderabad.

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Synthesis of chiral alcohols from prochiral ketones by using biocatalyst

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One of the main features of the living world is its chirality of the biological active compounds. Stereochemistry of these compounds is one of the most important parameters governing the biological activity. The asymmetric reduction of ketones is one of the most important, fundamental and practical reactions for producing non-racemic chiral alcohols, which can be transformed into various functionality's, without racemization, to synthesize industrially important chemicals such as pharmaceuticals, agrochemicals and natural products. Asymmetric reduction of prochiral ketones by means of chemical method involves use of expensive chemical reagents and environmental hazardous heavy metals. On the contrary, use of biocatalysts, microorganisms or plant cells for reduction of prochiral ketones yielding corresponding optically active alcohols with excellent enantioselectivity, without using expensive chemicals and under eco-friendly environment. The Green Technology can be applied to almost every type of synthetic organic reactions, it is the design of safer and more efficient processes of synthetic chemistry that reduces or eliminates the use / generation of hazardous substances during the processes of chemical synthesis. In the present study highlights an enzymatic approach for the synthesis of chiral tetra hydro pyranols and chiral isitinols and by enantioselective reduction of 2-substituted tetrahydropyran-4-ones and 1H-indole-2,3-diones using *Daucus carota*, the reaction occurred in aqueous buffer under extremely mild and environmentally benign conditions giving 83-92% yield and 85-96% Enantio meric excess (ee) in high yields.

The impending use of this ecofriendly technology has wider commercial application to the production of chiral alcohols on an industrial scale.

Biography

Ch. Sreelakshmi is pursuing her PhD in IICT Hyderabad under the supervision of Dr. A. Bhaskar Rao Sci-F, in Organic-1 Division, Registered in JNTUH Hyderabad, and Professor M.Lakshmi Narasu as a Co-Guide. She had published 6 papers in international and 1 in Indian Journals with the Supervision of her guide. She was awarded as a (Senior Research Fellow) from CSIR-SRF in 2009.

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