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Anti diabetic (AD) studies of bis-glycine hydro bromide (45 nm) nano crystals

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Abstract

In material applications nano materials and nano crystals are widely used and many utilization in all fields of science and technology. In this study we converted macro crystal into nano crystal by ball milling method, crystals are analysed by XRD method for parameters and the crystal is converted into nano crystals of 45 nm which are used for filter applications and anti diabetic study of the nano crystal inhibition values are increased with proper increase in the value of concentration, IC_{50} values are 29.8 for Nano crystal of BGHB.

Introduction

Nano crystal is obtained from macro crystals by milling methodology. The crystal [1], [2], [3], [4], [5] is a solid whose molecules are arranged in repeating pattern and have geometrical shape in nano crystal the range is nearly 100 nm level. The nano crystals have numerous applications in electronics, biology and industries and here the AD activity is promptly discussed.

Bisglycine hydro bromide salt was orchestrated by dissolving glycine and hydro bromide corrosive in stoichiometric proportion (3:1) in twofold refined water. The arrangement was blended persistently utilizing an attractive stirrer. The acquired immersed arrangement was additionally refined and permitted to vanish at higher temperature which yields powder from of the incorporated material was filtered by rehashed recrystallization process. Modest seed gems with great straightforwardness were acquired because of unconstrained nucleation. Among them, an imperfection free seed precious stone was chosen and suspended in the mother arrangement, which was permitted to dissipate at room Large size single gems were acquired because of the assortment of monomers at the seed gem destinations from the arrangement, after the nucleation and development process were finished. Following a time of 24 days dismal and straightforward precious stones were gotten with measurements ($17 \times 7 \times 6\,mm^3$) and milled to have nano crystals.

Section snippets

XRD

Bis Glycine Hydro Bromide Nanocrystal having a = 5.39 Å, b = 8.17 Å c = 18.39 Å and $\alpha = \gamma = 90°$, $\beta = 111.81°$. It is monoclinic system and the crystal is milled for 30 h to get 45 nm of size of nano form of BGHB.

SAMPLE	CRYSTAL SIZE
Initial powder	219 nm
Milled after 30 h	45 nm

…

Anti-diabetic characterisation

The BGHB macro crystal are prepared by solution growth method and converted into Nano scale by ball milling, the BGHB nano crystals are having anti -diabetic, anti-microbial properties. The inhibition values are increased with…

Result and discussion

The BGHB macro crystals are converted into Nano crystal by ball milling method, the crystal are analyzed by SXRD and PXRD and by method for parameters and by nm size. The crystal have 45 nm as size and IC_{50} value of BGHB Nano scale is 29.8 and used for anti- diabetic properties. The concentration values increase with inhibition values at crystals. BGHB Nano crystals are used for anti-diabetic.…

Conclusion

By using ball milling method conversion of macro crystal to nano crystal is obtained. The BGHB nano crystals are having antidiabetic properties. It is having IC_{50} as 29.8 value which is best for anti diabetic activity. The inhibition values are increased with increase in concentration values. IC_{50} values are well suited for anti diabetic analysis compared to macro scale values.…

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References (5)

V.V. Ghazaryan *et al.*
Mixed salts of amino acids: L-lysinium (2+) chloride nitrate, L-lysinium (2+) chloride tetrafluoroborate and L-lysinium(2+) chloride perchlorate
J. Mol. Struct. (2010)

Yaping Zhang *et al.*
Recovery of L-lysine from L-lysine monohydrochloride by ion substitution using ion-exchange membrane
Desalination (2011)

There are more references available in the full text version of this article.

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