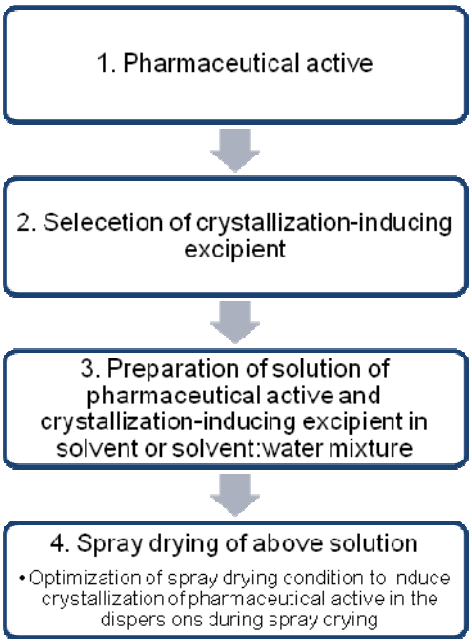


Figure 1: Schematic representation of the process

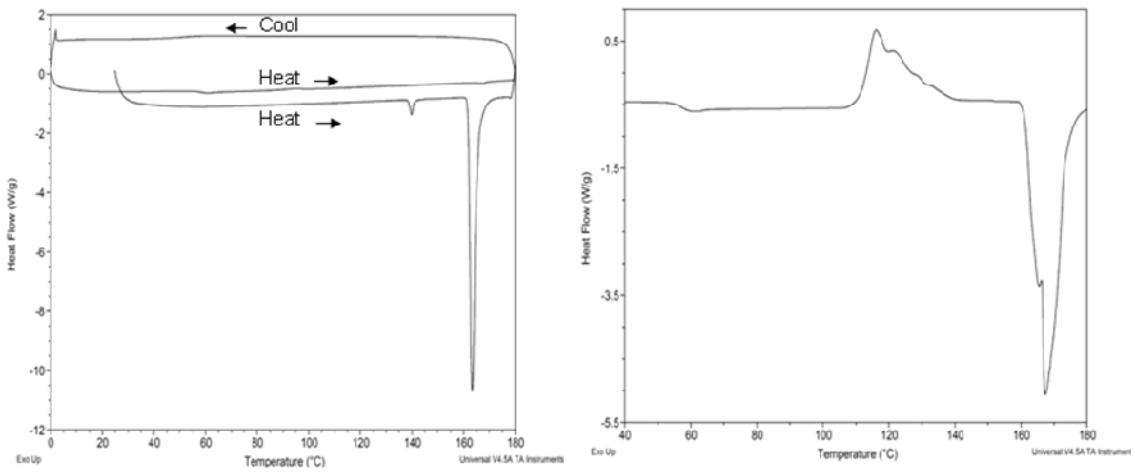


Figure 2: DSC scan of *in-situ* generated amorphous celecoxib (left) and amorphous celecoxib and mannitol physical mixture 50:50 w/w dispersion (right). Amorphous celecoxib shows recrystallization and melting in the presence of mannitol.

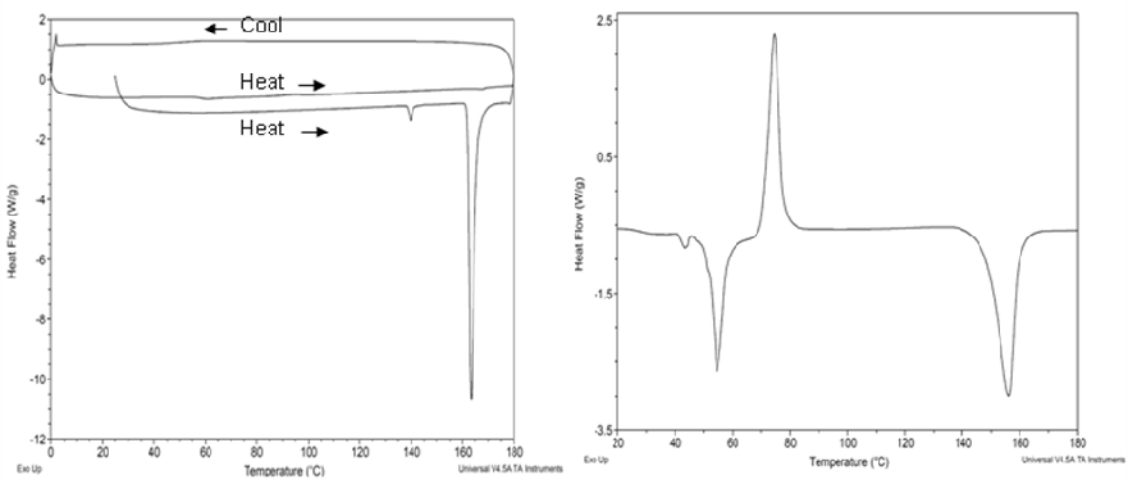


Figure 3: DSC scan of *in-situ* generated amorphous celecoxib (left) and amorphous celecoxib and stearic acid physical mixture 50:50 w/w dispersion (right). Amorphous celecoxib shows recrystallization and melting in the presence of stearic acid.

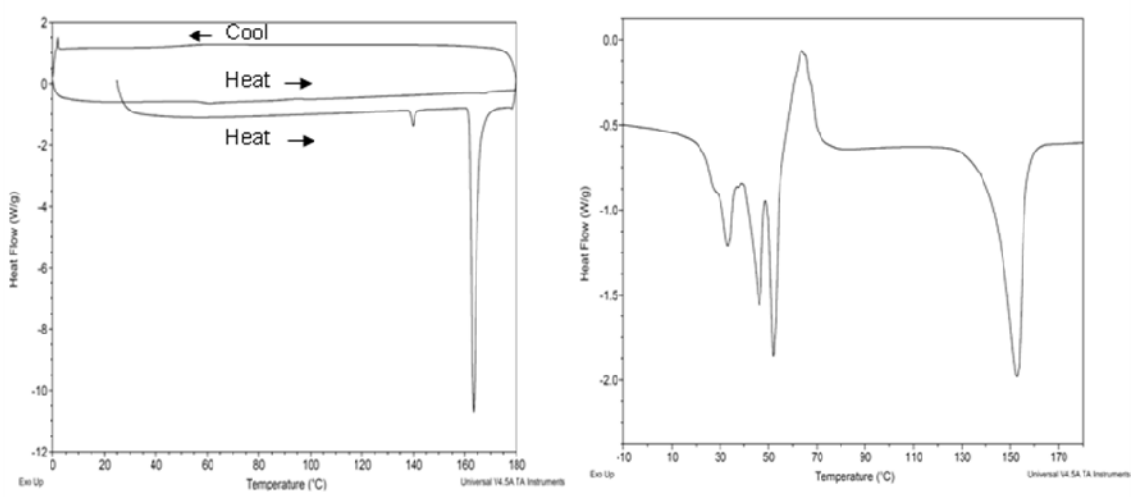


Figure 4: DSC scan of *in situ* generated amorphous celecoxib (left) and amorphous celecoxib and cetostearyl alcohol physical mixture 50:50 w/w dispersion (right). Amorphous celecoxib shows recrystallization and melting in the presence of cetostearyl alcohol.

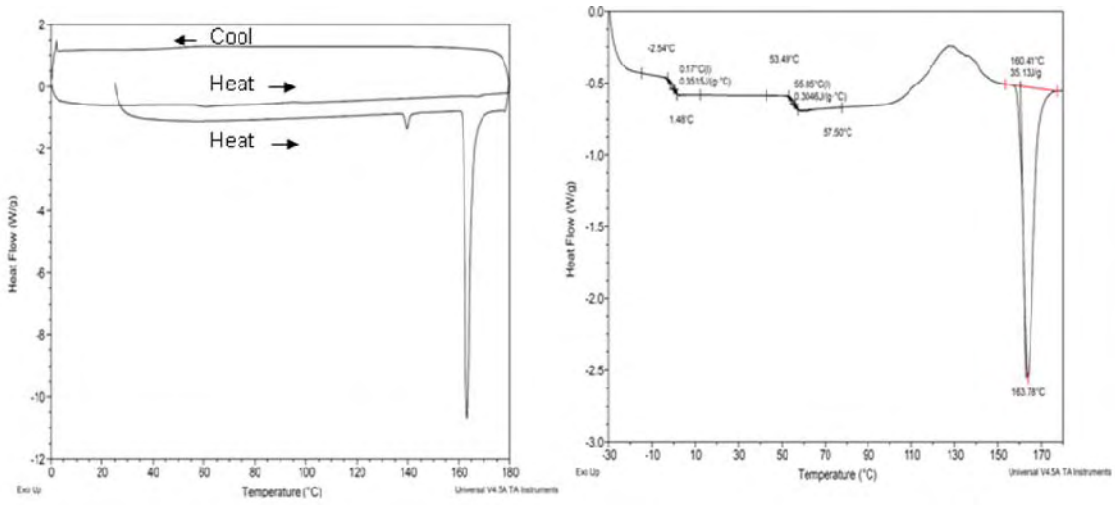
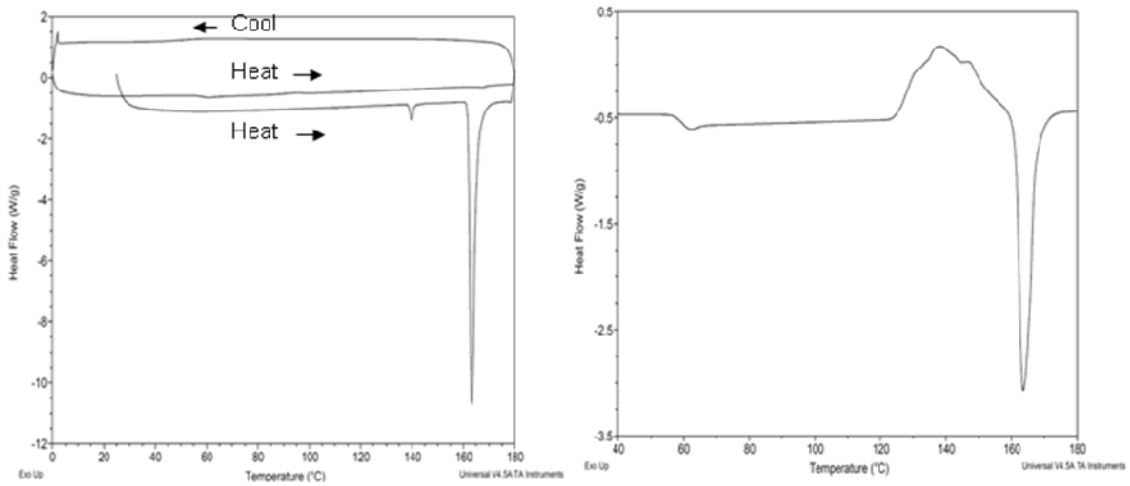


Figure 5: DSC scan of *in-situ* generated amorphous celecoxib (left) and amorphous celecoxib and amorphous sorbitol physical mixture 50:50 w/w dispersion (right). Amorphous celecoxib shows recrystallization and melting in the presence of sorbitol. Dispersion shows two separate T_gs, corresponding to sorbitol and celecoxib indicating the immiscibility of two components.



<u>Figure 6</u>: DSC scan of *in-situ* generated amorphous celecoxib (left) and amorphous celecoxib and crystalline potassium chloride physical mixture 50:50 w/w dispersion (right). Amorphous celecoxib shows recrystallization and melting in the presence of potassium chloride.

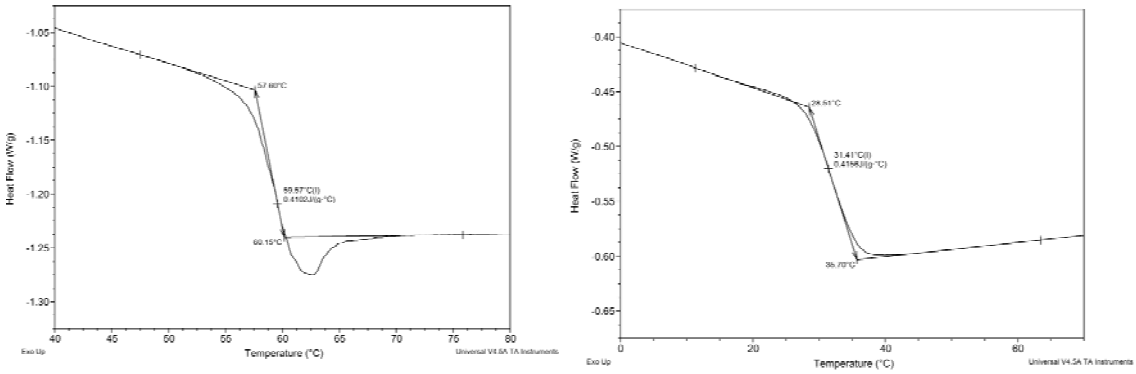


Figure 7: DSC scan of *in-situ* generated amorphous celecoxib (left) and amorphous celecoxib urea 75:25 w/w dispersion (right). Urea causes plasticization of amorphous celecoxib (decrease in T_g) and imparts recrystallization followed by melting.

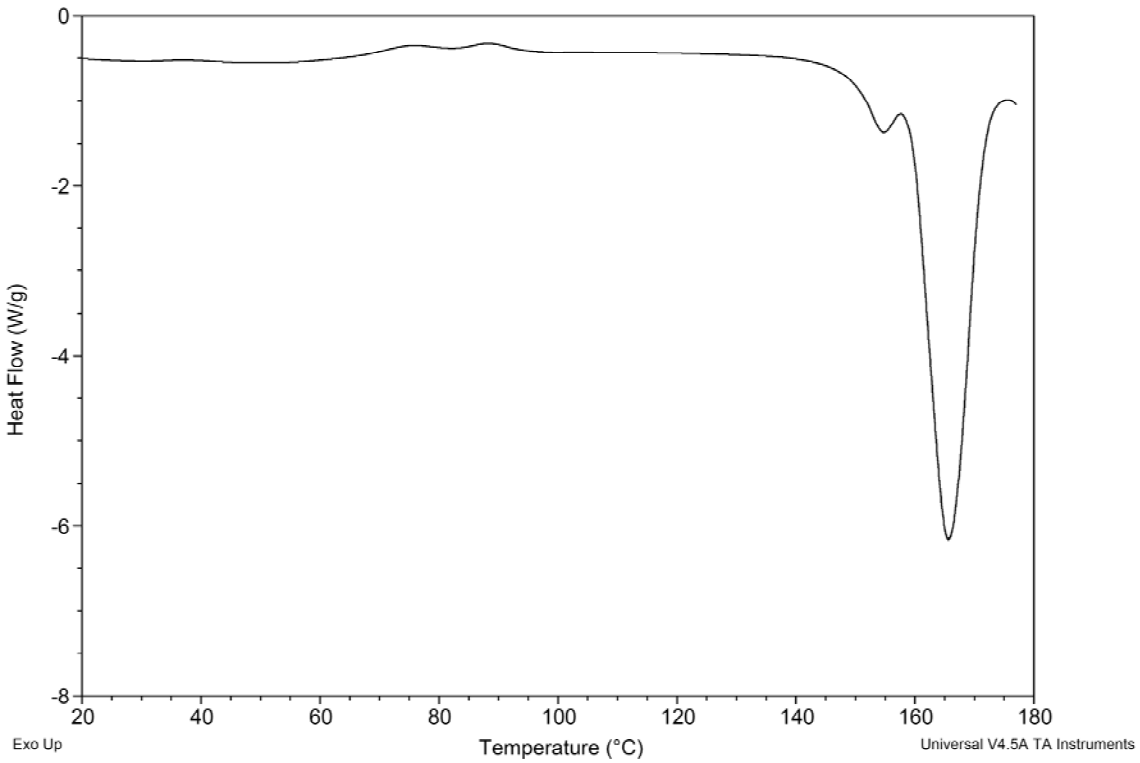
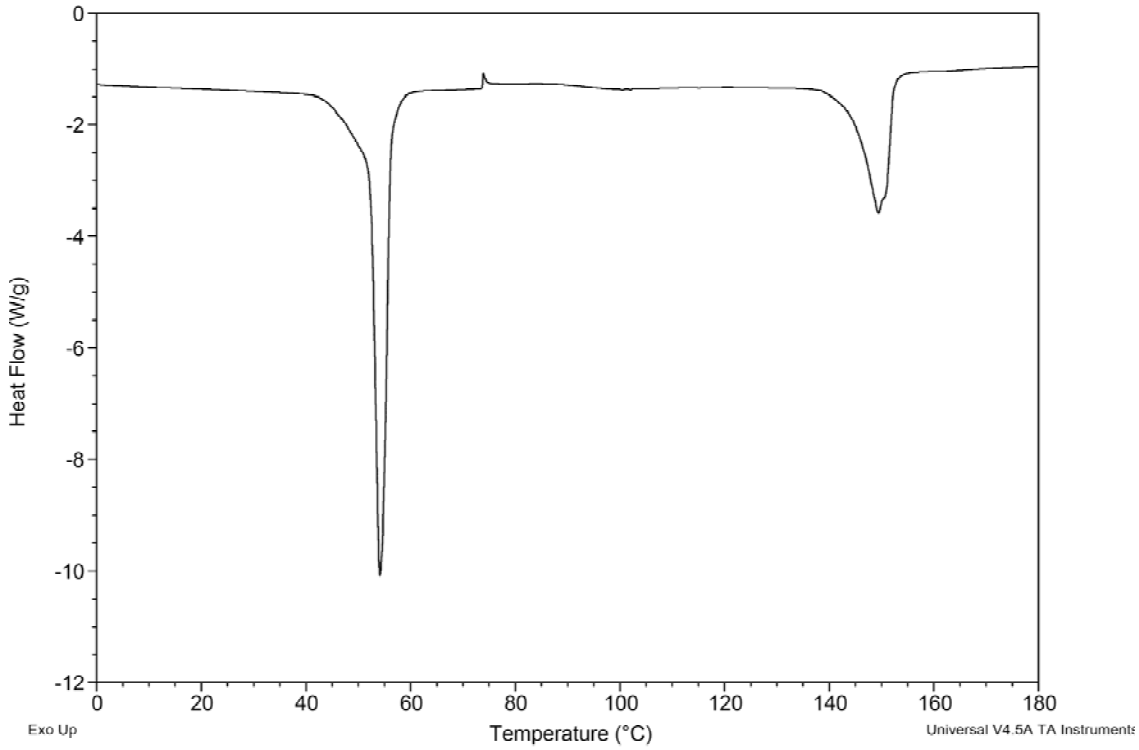


Figure 8: DSC scan of celecoxib: mannitol 50:50 w/w dispersion. Recrystallization and melting is evident for amorphous celecoxib in the presence of mannitol. Melting of mannitol is also visible.



<u>Figure 9</u>: DSC scan of celecoxib: stearic acid 50:50 w/w dispersion. Recrystallization and melting is evident for amorphous celecoxib in the presence of stearic acid. Melting of stearic acid is also visible.

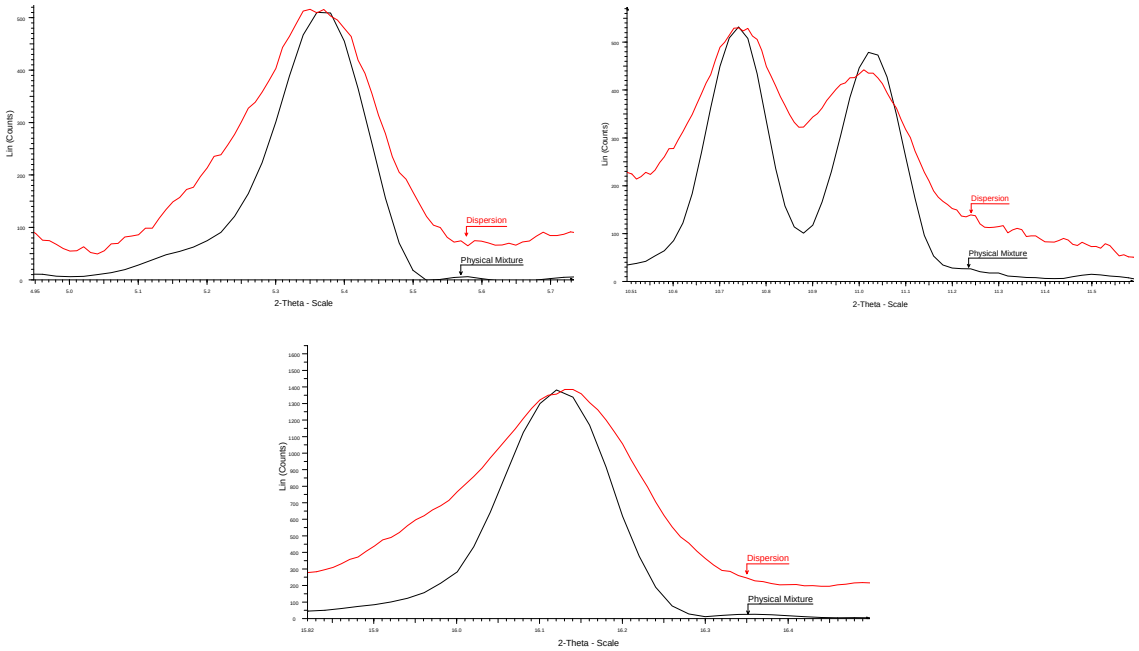


Figure 10: Representative broadening of PXRD peaks of celecoxib in celecoxib: stearic acid dispersion

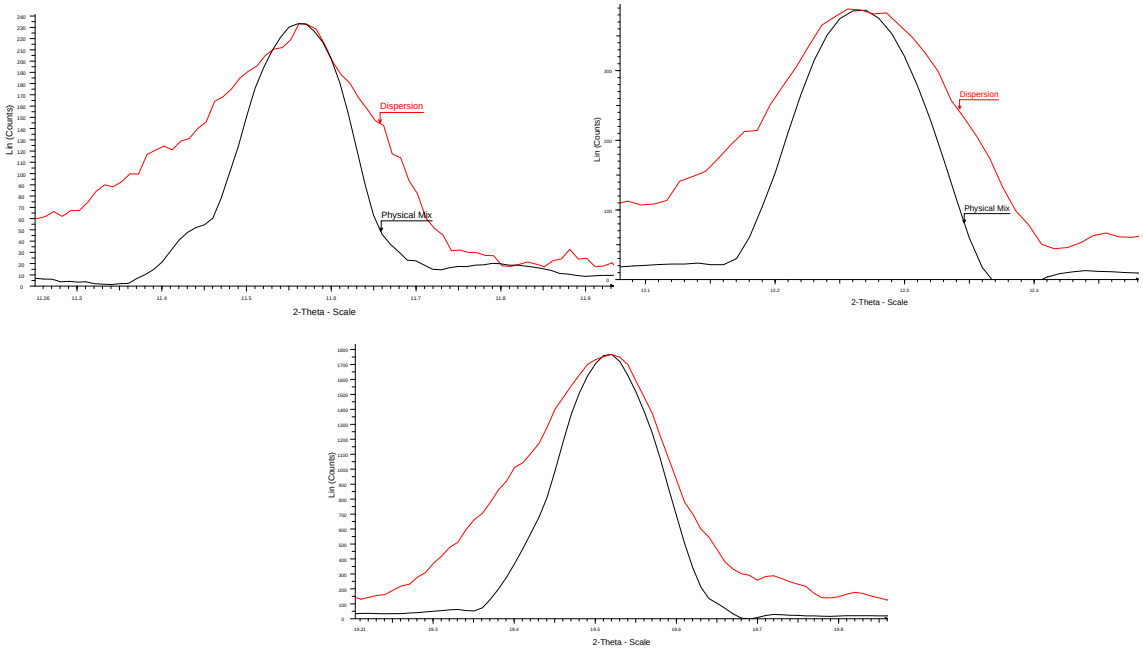
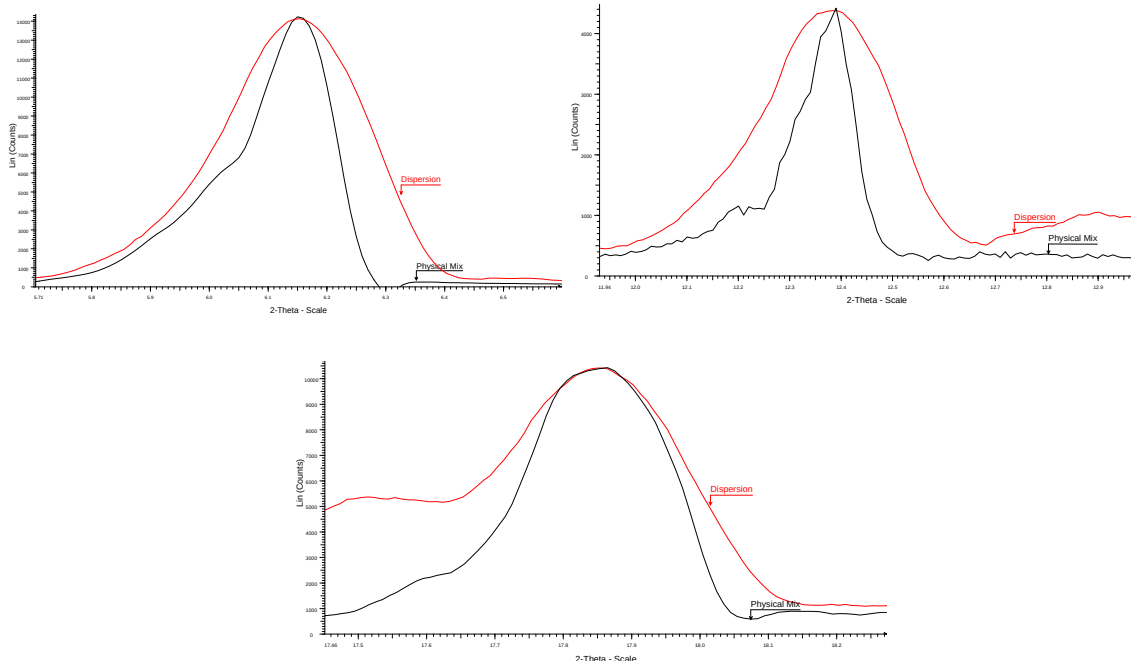


Figure 11: Representative broadening of PXRD peaks of aceclofenac in aceclofenac: potassium chloride dispersion



<u>Figure 12</u>: Representative broadening of PXRD peaks of Ibuprofen in ibuprofen mannitol dispersion

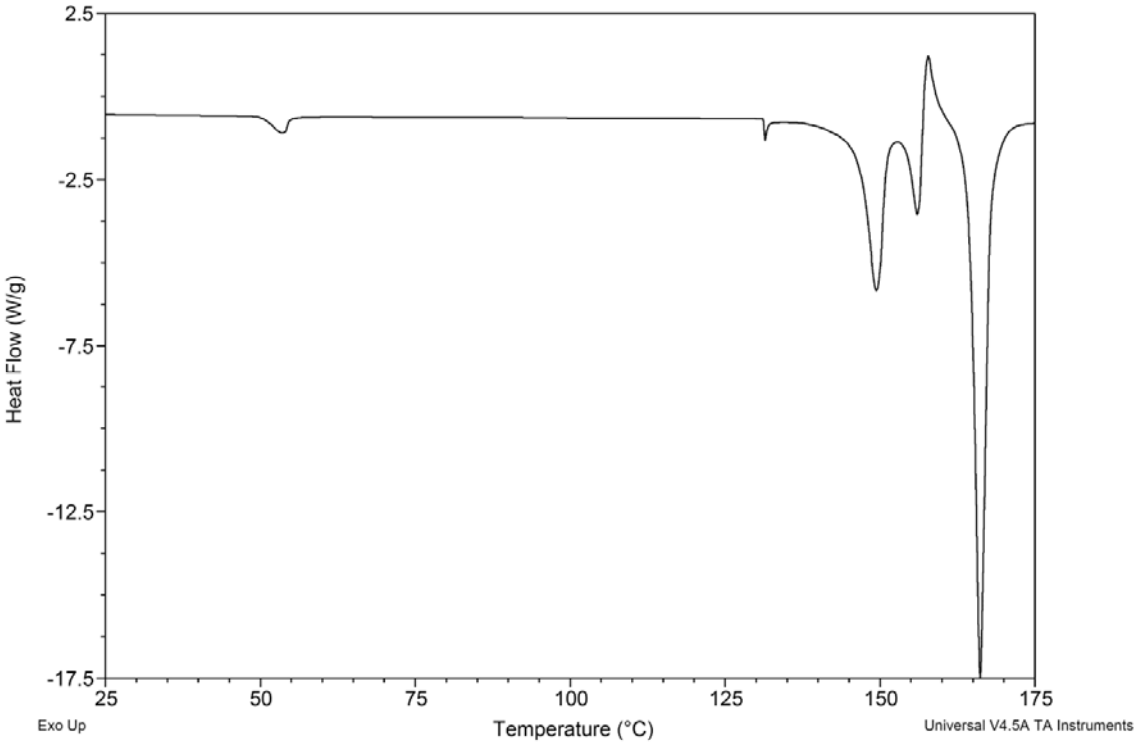


Figure 13: DSC scan of Aceclofenac: Stearic acid dispersion 50:50 w/w. Recrystallization and melting is evident for amorphous celecoxib in the presence of stearic acid. Melting of stearic acid is also visible.

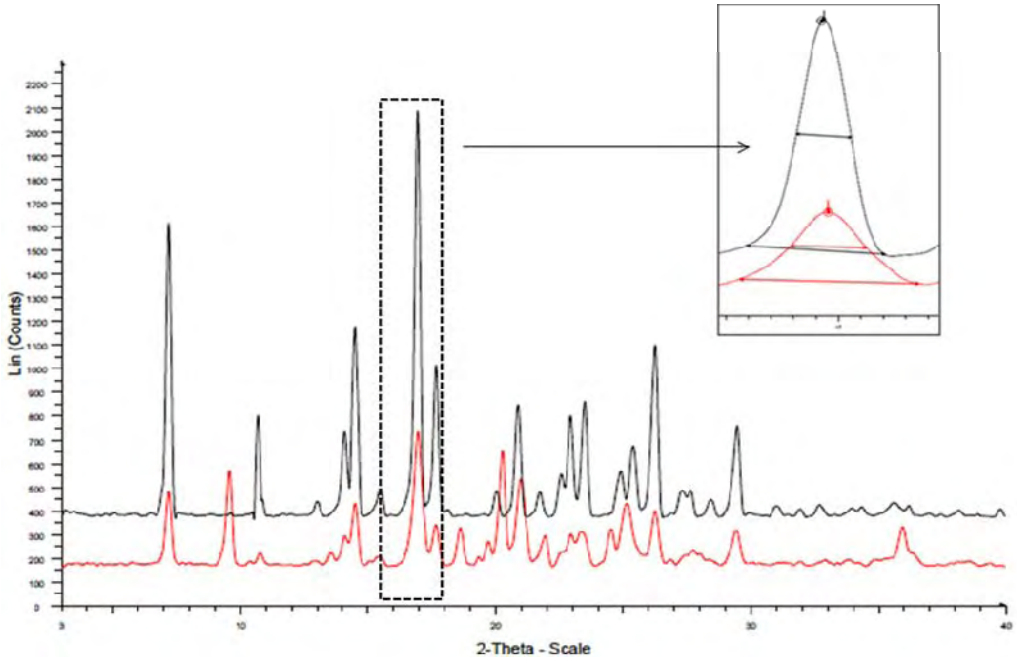


Figure 14: PXRD of hesperetin and its nanocrystalline solid dispersion with mannitol in 50:50 w/w proportion; inset depicts measurement of peak width at half height.

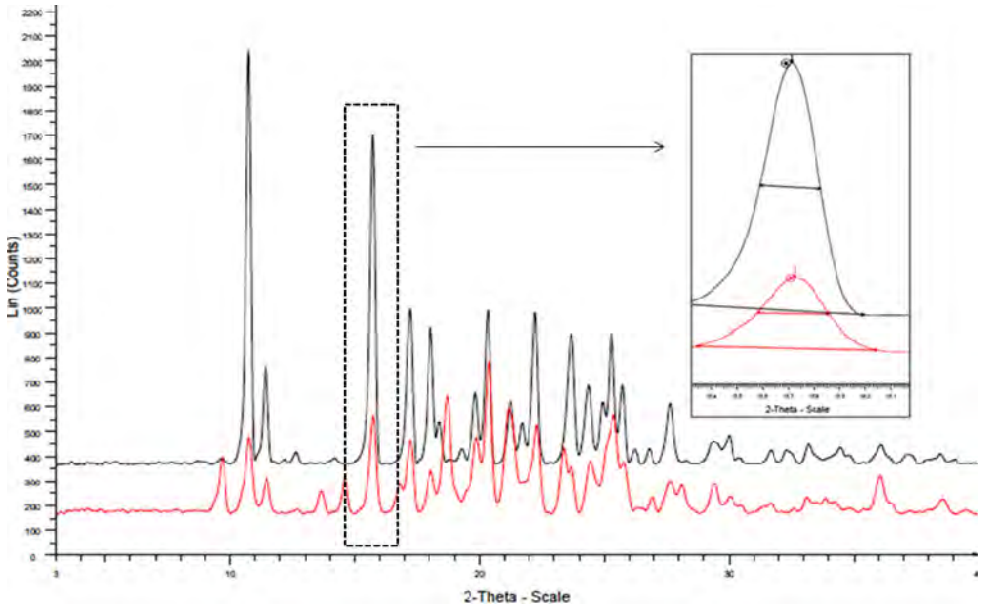


Figure 15: PXRD of naringenin and its nanocrystalline solid dispersion with mannitol in 50:50 w/w proportion; insect depicts measurement of peak width at half height

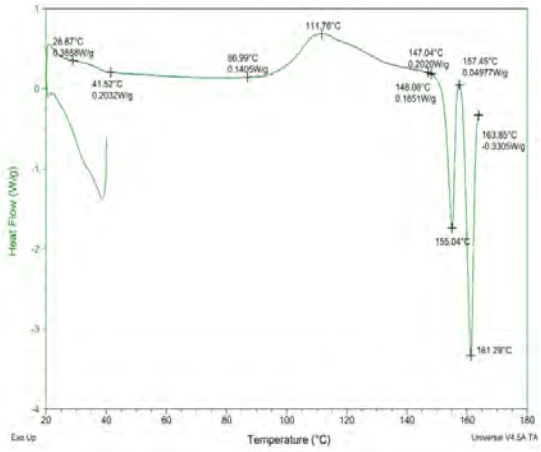


Figure 16: DSC scan of indomethacin: mannitol 50:50 w/w dispersion. Recrystallization and melting is evident for amorphous indomethacin in the presence of mannitol. Melting of mannitol is also visible.

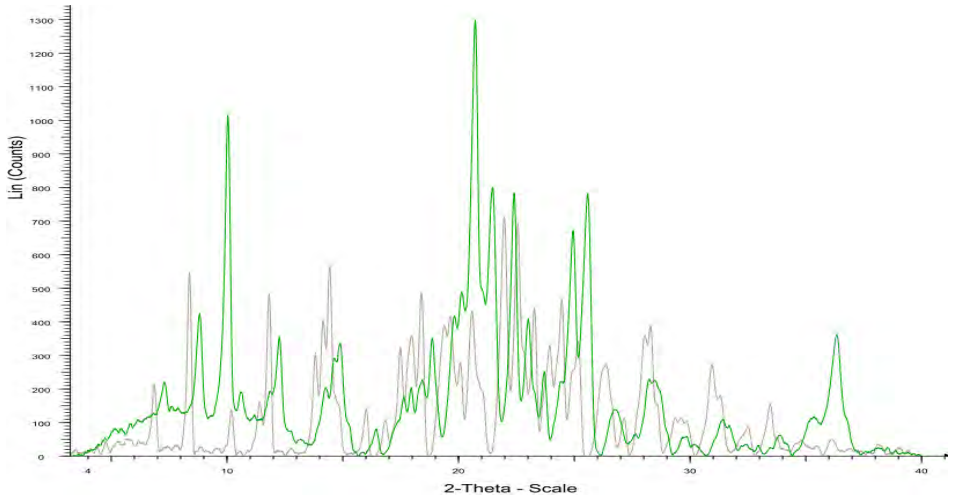
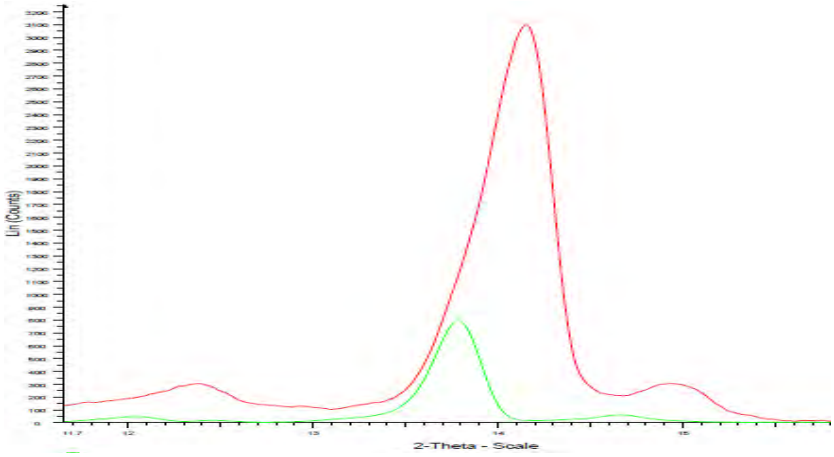


Figure 17: PXRD of indomethacin and its nanocrystalline solid dispersion with mannitol in 50:50 w/w proportions



<u>Figure 18:</u> Representative broadening of PXRD peaks of curcumin in curcumin : mannitol dispersion

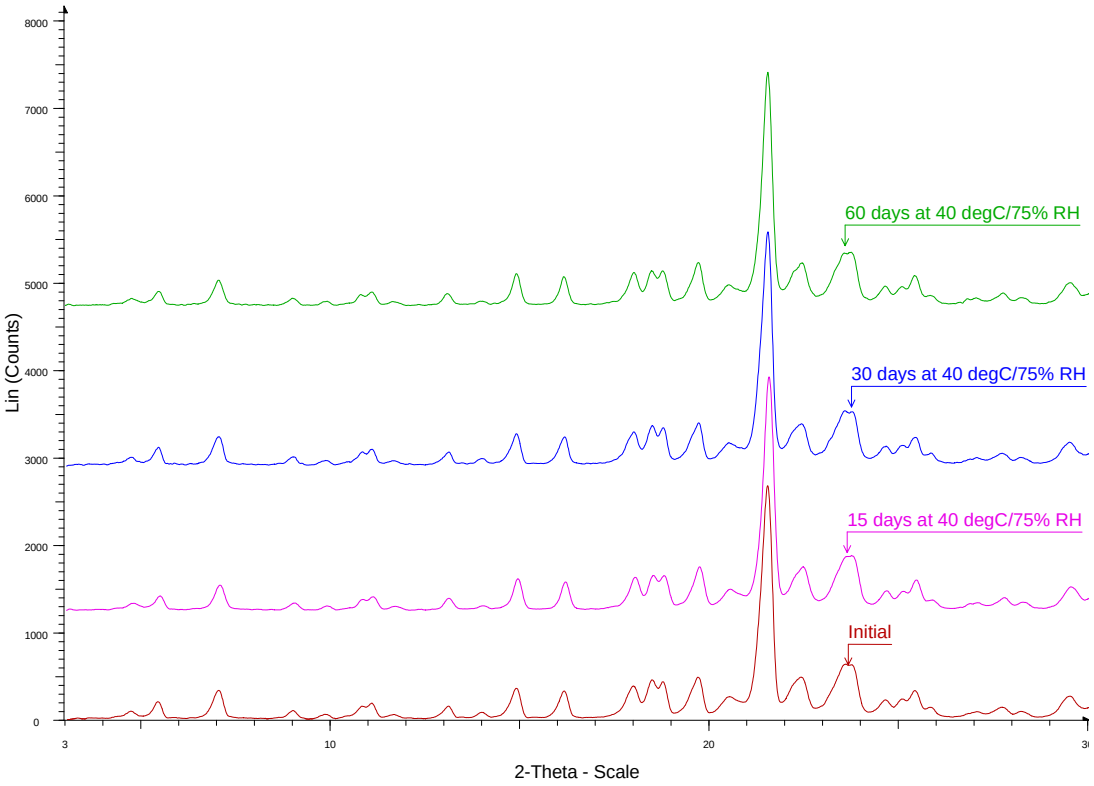
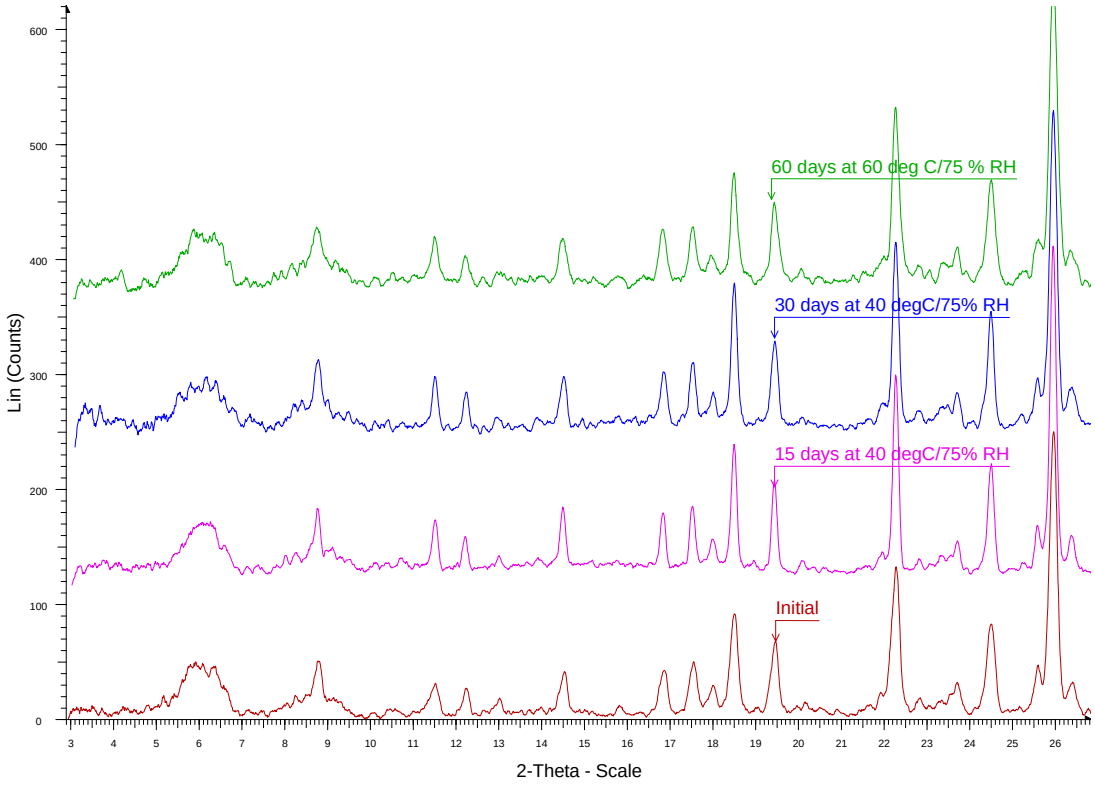


Figure 19: PXRD overlay of Accelerated stability (40 °C/75% RH) samples of Celecoxib: Stearic acid 50:50 % w/w nanocrystalline solid dispersion. No significant change in the PXRD patterns indicates physical stability of dispersion.



<u>Figure 20</u>: PXRD overlay of Accelerated stability (40 °C/75% RH) samples of Aceclofenac: Potassium Chloride 50:50 % w/w nanocrystalline solid dispersion. No significant change in the PXRD patterns indicates physical stability of dispersion.

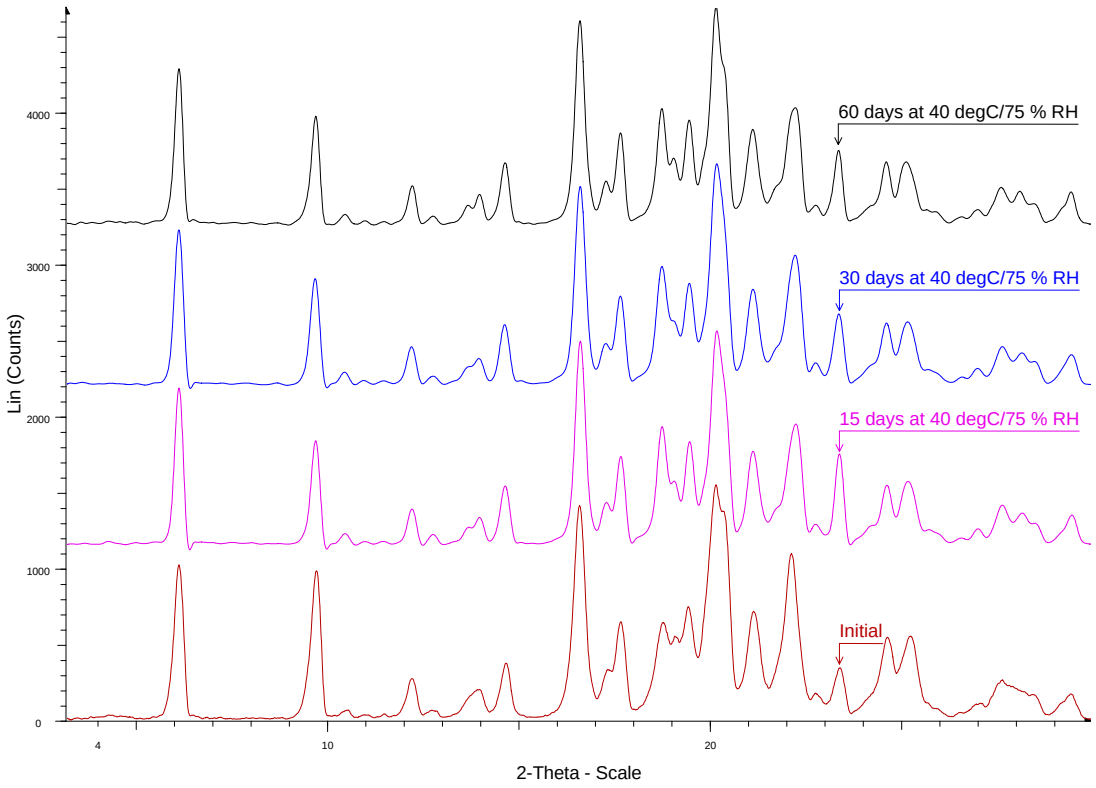


Figure 21: PXRD overlay of Accelerated stability (40 °C/75% RH) samples of Ibuprofen: Mannitol 50:50 % w/w nanocrystalline solid dispersion. No significant changes in the PXRD patterns indicate physical stability of dispersion.

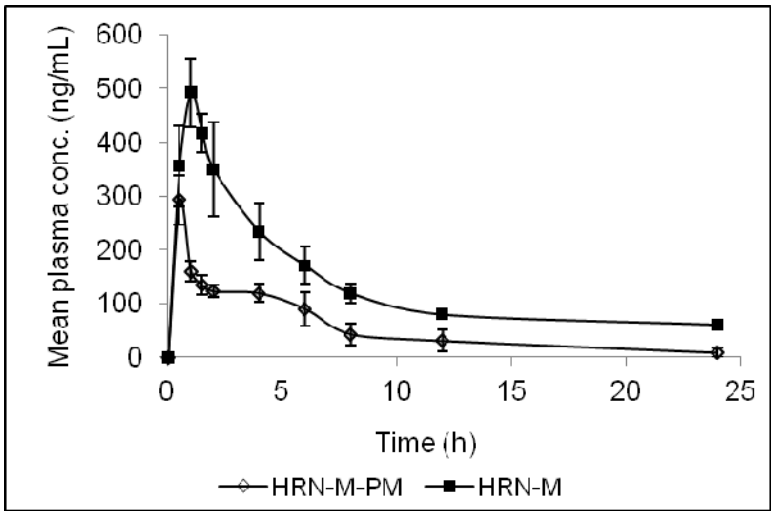


Figure 22. Mean plasma concentration-time profile of HRN-M-PM and HRN-M

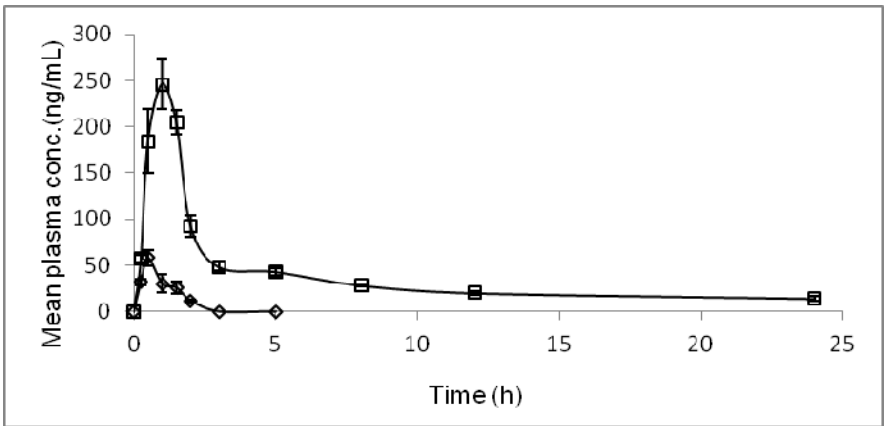


Figure 23. Mean plasma concentration-time profile of control (◊) and Curcumin stearic acid NSD (CRM-SA) (□)

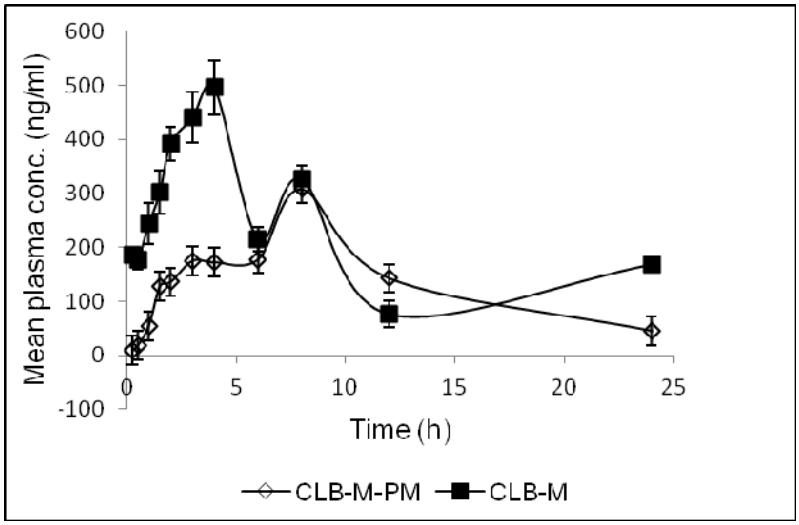


Figure 24. Mean plasma concentration-time profile of celecoxib mannitol physical mixture (CLB-M-PM) and their nanocrystalline solid dispersion (CLB-M)