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# The effect of cyclodextrin mixtures on aqueous solubility of beclomethasone dipropionate

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The aim of present study was to evaluate the effect of natural, synthetic cyclodextrins (CDs) and CD mixtures on aqueous solubility of beclomethasone dipropionate (BDP). The phase solubility studies were done in the presence of 6 CDs. Furthermore, aqueous solubility of BDP was tested in the presence of CD mixtures. The solubility of BDP in water was increased by 30, 77, 155 and 30 folds in the solution containing 20% w/v alfa-CD, hydroxylpropyl beta-CD (HP-beta-CD), hydroxypropyl gamma-CD (HP-gamma-CD) and sulphobutylether b-CD (SBE-b-CD), respectively. CD mixtures had remarkable effect on the aqueous solubility of BDP so that solubility in water increased between 200 and 1,500 times in the presence of different CD mixtures. Further addition of sodium acetate to the solubilisation medium reduced the aqueous solubility. In conclusion, CD complexation was able to improve the aqueous solubility of BDP. The synergistic effect of cyclodextrin mixture was observed.

**Keywords:** Aqueous solubility; Beclomethasone dipropionate; Cyclodextrin