Thesis Title Effect of Compression Force on Release of Phenylpropanolamine Hydrochloride Multi-Unit Controlled Release Tablets

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ABSTRACT

Phenylpropanolamine hydrochloride (PP) pellets were prepared in a fluidized bed granulator. Microcrystalline cellulose and distilled water were employed as pellet diluent and binder, respectively. The pellets were coated with methacrylate ester copolymer (Eudragit® RS 100) in acetone and ethanol solution in Glatt GPCG-1 with Wurster insertion. Triethyl citrate or castor oil was employed as plasticizer. It was found that pellets coated with polymer containing triethyl citrate could release PP at faster rate than did those containing castor oil. The combination of these two plasticizers could yield appropriate release rate.

Tablets containing coated pellets were compressed at different pressure on instrumented single punch tablet machine. When 20% of the tableting excipients was added as tablet aids the dissolution rates of phenylpropanolamine hydrochloride were reduced, which expected to be the effect of bonding between coated particles. The effect of compression forces on release properties of phenylpropanolamine hydrochloride multi-unit tablets could be reduced or eliminated by using approximately 30% of tableting excipients as microcrystalline cellulose and croscarmellose sodium as fillers and disintegrants. Thus the release pattern of multi-unit tablets was the same as

uncompressed pellets even at high pressure. The multi-unit tablets exhibit sufficient hardness, rapid disintegration and extended release pattern as required by USP XXII