

Studies into some factors which affect the dissolution rate of non-disintegration pellets.

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Abstract:

The influence of granule size and lubricants on the dissolution rate of Aspirin, Salicylic Acid and equimolar mixture of both are reported.

This study involved three stages viz:

- (i) The influence of different granule sizes of Aspirin and Salicylic Acid on dissolution rate of non-disintegrating disks;
- (ii) The influence of different granule sizes of selected lubricants (fixed concentration) on the dissolution rate of Aspirin and Salicylic acid (of a fixed granule size);
- (iii) The influence of different concentrations of other lubricants on the dissolution rate of Aspirin, Salicylic Acid and an equimolar mixture of these drugs.

Granule size fractions of the test drugs studied were 75/45-, 90/75-, 150/90-, 250/150- and 355/250 microns. The dissolution rate of disks prepared from these granules revealed it was unaffected by the granule size.

Lubricants employed for the study of the influence of different sizes of lubricants on the dissolution rate of compressed disks were Magnesium Stearate, Talc, Stearic Acid, Boric Acid, Sodium Lauryl Sulphate and Polyethylene Glycol 6000. Each pellet of Aspirin and Salicylic Acid contained 3 percent of each size fraction of the lubricants. It was observed that the dissolution rate of the pellets was unaffected by the particle size of these lubricants.

In the third series of experiments, both hydrophobic and hydrophilic lubricants were tested. The former group were Glycerol Monostearate, Benzoic Acid, Talc, Magnesium Stearate, Sorbitan Monostearate (Span 30) and Polyethylene Glycol 4000 (PEG 4000) while the latter group were Alginic Acid, Sodium Acetate, Polyoxyethylene Sorbitan Monostearate (Tween 80), Maize, Potato, Rice and Cassava Starches and Polyethylene Glycol 6000 (PEG 6000). Generally, as the concentration of the hydrophobic lubricants increased from 1.0 - 5.0%, there was a decrease in dissolution rate. Talc, Span 80 and PEG 4000 however unaffected the dissolution rate. The starches showed no appreciable change in dissolution rate from concentrations of 0.1% - 5%.

Keywords: Granule/ pellets/ dissolution rate/ lubricants/ non-disintegrating disks/ equimolar mixture/ drugs/ microns/ glycerol/ concentrations

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