Thesis Title Direct compression properties of spray dried modified tapioca starch

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Date of Graduation 21 May B.E. 2540 (1997)

ABSTRACT

Spray dried modified tapioca starches were prepared by treating slurry of tapioca starch with hydrochloric acid at several pH and reaction times to produce binding ability. It was found that the true density of spray dried modified tapioca was not changed by acid treatment. The moisture content and % loss on drying of spray dried modified tapioca products from bottom receiver were higher than those from cyclone receiver. The changes on the surface morphology of starch grain increased with the time of treatment. Scanning electron microscope revealed that a particle of spray dried modified tapioca was made up entirely of aggregates of tapioca starch grains. The products from cyclone receiver were composed most of small broken aggregates tapioca starch grains where as those from bottom receiver were composed most of spherical aggregates of tapioca starch grains and the average particle size was in a range of 115-130 microns. The increase in reaction times and degree of acidity improve compactability by increasing contact surface area of the starch grain but impair disintegration time of tablets. With respect to the dissolution, spray dried modified tapioca starch-based tablets offered fast and complete release of drug regardless of its solubility.