

Optimization of Processing Technique of the Fruit Juice Effervescent Tablet with Response Surface Method

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Abstract

This research was aimed to study optimization of processing technique of fruit juice effervescent tablet with Response Surface Method (RSM). The research design used was central composite designs with three dependent variables including X1 (compression force), X2 (the citric acid concentration), and X3 (the sodium bicarbonate concentration), where independent variables was hardness and solubility of the tablet. The results of the research showed that the optimum tablets hardness was 40.53 N that reached at treatment compression force of 2339.8 N; the citric acid concentration of 352.82 mg/gr; and the sodium bicarbonate concentration of 561.62 mg/gr. Whereas the solubilisation of 41.99 second was resulted at treatment compression force of 1417.6 N; 334.24 mg/unit weight citric acid; and 593.90 mg/gr sodium bicarbonate. To get tablet characteristic with high hardness but solubilize quickly, was made at 1500 N compression force; the citric acid concentration 350 mg/gr; and the sodium bicarbonate concentration 500 mg/gr.

Key words: optimization, compression force, hardness, solubility