STUDY OF THE COPRECIPITATES OF SOME HYPOGLYCAEMIC DRUGS

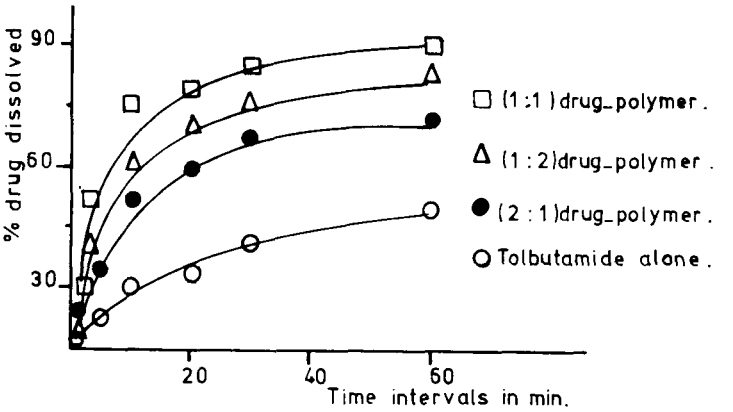
A. A. Kassem, A. Ghanem, M. Meshali[x], M. Fahaem, Department of Pharmaceutics, Faculty of Pharmacy, University of Mansoura, Mansoura, Egypt. ([x] correspondence)

The coprecipitates of tolbutamide I, Chlorpropamide II and glycodiazine III, with both cellulose derivatives and polyethylene glycols have been prepared. The usual technique for coprecipitation was followed using ethanol as the solvent (Geneidi & others, 1978). The dissolution rates in water were conducted at 23C and 300 rpm. Samples were assayed spectrophotometrically. The data of all the coprecipitates showed a very rapid initial dissolution phase followed by a slower more prolonged phase. Maximum values were reached after nearly an hour. Some of the data are compiled in Table 1. It is clear that the molecular weight of the polymer significantly changes the dissolution rate (Chiou & Riegelman, 1969). Altering the drug polymer ratio also affects the dissolution rates, Fig.1 shows an example. The low value with drug polymer ratio 1:2 might be due to high viscosity in the microdiffusion layer. TLC and IR spectra showed the absence of complexation between the drugs and polymers (Said & others, 1974; Geneidi & others, 1978). The enhanced dissolution rates of the coprecipitates could be attributed to the reduction of particle size, increased wettability and solubilization of the drug by the polymer at the diffusion layer. The in vivo availability of these coprecipitates is under investigation.

Table 1. Percent drug dissolved from 1:1 drug polymer coprecipitates at 5 min. (average of three determinations)

		Methyl cellulose			Polyethylene glycols		
Drug	alone	1000	1500	4000	4000	6000	15000
I	25.6	32.0	28.8	56.0	62.4	64.0	57.6
II	23.0	30.4	30.8	52.0	44.0	61.6	74.0
III	18.4	44.0	46.0	49.2	38.0	40.4	60.0

Fig.1 Dissolution rate of tolbutamide coprecipitates with methyl cellulose 1500.



Chiou, W.L. & Riegelman, S. (1969). J. Pharm. Sci., 58, 1505-1507.
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