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Preparation and characterization of sustained release matrix tablets based on hydrophilic polymer

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Tablets occupy an important place in the therapeutic arsenal. It is the most commonly used dosage form for administering drugs. Prolonged-release tablets reduce the number of doses by ensuring effective blood levels. Indeed, by controlling the kinetics of release from the matrix, it is possible to consequently control the kinetics of absorption of the active ingredient. HPMC is a hydrophilic polymer widely used in the formulation of sustained-release tablets (hydrophilic matrices). In the presence of water, HPMC forms a gel. The objective of this work is the formulation of a sustained-release tablet using a hydrophilic polymer: hydroxypropylmethylcellulose (HPMC) on the one hand and the study of the influence of the grade of the HPMC on the kinetics of release of the active principle as well as on the swelling kinetics of the matrix by varying the proportions of the HPMC in the formula. Pharmacotechnical and biopharmaceutical controls and modeling of the dissolution profiles are carried out on the tablets obtained. The study of the swelling kinetics of two grades of HPMC was also carried out. The tablets were obtained by mixing and direct compression. The qualitative and quantitative formulas are summarized in the table 1. Before proceeding with the compression, the flow test and the ability to settle are carried out on the different mixtures The compression of the mixture is carried out on an alternative compressing machine of the Forgerais brand equipped with punches 10 mm in diameter, round, flat, without breakage bar. The theoretical weight of the tablets is 300 mg ± 5%. The hardness of the tablets is 4-7 kp. The controls carried out on the tablets: Mass uniformity, dimensions, friability test, hardness, dissolution test and study of swelling.

	HPMC	Mg	Avicel	Aérosil	Active ingredient	CMC Na	HPMC
	15cps	Stearate					5cps
F 1	69,17	2	20	0,5	8,33	-	-
F 2	49,17	2	40	0,5	8,33	-	-
F 3	86,17	2	-	0,5	8,33	3	-
F 4	83,17	2	-	0,5	8,33	6	-
F 5		2	20	0,5	8,33	-	69,17
F 6		2	40	0,5	8,33	-	49,17
F 7		2	-	0,5	8,33	3	86,17
F 8		**2**	**-**	**0,5**	**8,33**	**6**	**83,17**

Speaker Biography

Benaziz Ouarda is DPharm, Pharmacist specializing in Galenic pharmacy having experience of 15 years in the pharmaceutical industry, particularly in pharmaceutical research and development. Professional skills: pharmaceutical formulation, pharmaceutical expertise, nanotechnology (insulin-based nanoparticle formulation for oral administration), application of biopolymers in the formulation of modified-release pharmaceuticals forms, Biopharmacy, process development and validation, development and validation of coating processes, formulation of herbal medicines, pediatrics formulations, securing care in hospital.

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