Rheological and Swelling Properties of Some Polymers Used in The Formulation of Delayed Release Drugs

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The purpose of this study is to investigate the effect of formulation variables on drug release and floating properties of the delivery system. Hydroxypropyl methylcellulose (HPMC) of different viscosity grades and Carbopol 934P (CP934) were used in formulating the Gastric Floating Drug Delivery System (GFDDS) employing 2×3 full factorial design. Main effects and interaction terms of the formulation variables could be evaluated quantitatively by a mathematical model. It was found that both HPMC viscosity, the presence of Carbopol and their interaction had significant impact on the release and floating properties of the delivery system.

The behavior of two polymer reaction of is rheofluidiant for the reduction in viscosity with the increase in the pressure (Fig. 1,2). The macromolecules will disperse and be aligned completely when the constraint becomes relatively strong. Consequently viscosity becomes constant and the fluid will have a Newtonien behavior.

![Graph 1](image1.png)

**Fig. 1;2:** Evolution of the viscosity of the carbopol 934p and the HPMC K4 according to the shear stress to pH = 7; C=2.5%; T=20°C

The rheograms of balance of two polymers are represented by the shear stress according to the speed of shearing strain, to various pH and concentration (Fig. 3,4).

REFERENCES
