

## Rheological properties and surface tension of some natural gum aqueous dispersions commonly used in pharmaceutical industries

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**Background and Aims:** In the present era of diverging pharmaceuticals upcoming in the market, those from that of galbanum, chio, sarcocola, cherry gum, moench, fenugreek, gum tragacanth, roman nettle seed, guince seed natural origin are gaining increasing importance. In this context, some natural gums (NG) and resins has high orientation to be used as pharmaceutical excipient. Rheological and surface tension properties of polymers are important parameters that should be considered use them as excipient in pharmaceutical dosage form. The main aims of this study was to measure the viscosity and surface activity of the natural polymers compared to the semisynthetic and synthetic polymers.

**Methods:** Raw materials were purchased from the local market. Concentrations of 1, 3 and 5% of each of the NG were prepared in deionised water and homogenous colloid solutions were prepared by mixing them on a mechanical mixer or magnetic stirrer. When a homogenous colloid prepared from the NG, their rheological properties and surface tension were measured by Brookfield rheometer and Kruss tensiometer, respectively. All the measurements were done at room temperature.

**Results:** Results showed that the viscosities of the NG were in the range of 4.1 to 3836.24 cp and some of them behave as non Newtonian fluid and had a little antixotropic properties. Surface tension of the NG was in the range 24.78 to 68.70 that shows they have somehow surface active properties. The highest viscosity in all the polymers studied was shown in carbomer and the lowest in mucilage from fenugreek seeds. The highest surface tension in all the polymers studied was shown in 68.7 and the lowest 24.70 in mucilage from.

**Conclusions:** Nowadays the needs for natural sources of pharmaceutical excipients are prominent and NGs could be promising materials in this area.

**Keywords:** Natural gums; Rheologic properties; Surface tension