

Supplementary Methods

S1 Physiochemical properties of Tamarind Jellose

1. Organoleptic properties

Colour, odour, taste and texture properties were determined follow Manchanda R *et al* (I).

2. pH measurement

Jellose was done by shaking at various concentrations (1, 2, 3 and 4%w/v in distilled water) for 30 minutes at room temperature, and measured pH values were obtained using a digital pH meter at 25°C, repeated in triplicate.

3. Dispersion

Dispersion of Jellose will be studied by preparing Jellose gel in various concentrations (0.5, 1.0, 1.5, 2.0, 2.5, 3.0 %v/w in distilled water), then gently spreading 0.2g of each gel on a black, plastic sheet. If cloud clump spots appear on the plastic sheet, it will indicate the highest dispersion ratio of Jellose.

4. Angle of repose

The angle of repose was use to describe a flow ability of Jellose, by using the fixed funnel method. The funnel was fixed above the ground at 10cm and fixed 3cm from the base of a Jellose radius. Angle of repose was determined by allowing an excess quantity of Jellose to be drained though the funnel. The angle of repose was calculated by measuring the height of the pile of Jellose, then calculating the angle of repose, α , from the following equation:

$$\tan(\alpha) = \text{Height} / 0.5 \text{ base}$$

Where; α is an angle of repose

Height is: the height of the Jellose pile

Base is: the width of the Jellose base pile

5. Moisture sorption

Jellose (1g) was kept in a RH 75% humidity chamber (saturated salt condition (II)). Every 1 hour, the weight of Jellose was measured until it was constant.

6. Rheology

Jellose solution 2.0% w/v was determined rheology by viscometer (DV-III Ultra Brookfield Engineering Laboratories Inc.). It was poured into a small sample adapter, and viscosity was measured at speeds of: 50 to 250 rpm. Viscosity values were used to plot the rheology graph.

References

- I. Manchanda R, Arora SC, Manchanda R. Tamarind seed polysaccharide and its modifications-versatile pharmaceutical excipients—a review. *Int. J. Pharm. Technol. Res.* 2014;6(2):412-20
- II. Wexler A, Hasegawa S. Relative humidity-temperature relationships of some saturated salt solutions in the temperature range 0 to 50 C. *Journal of Research of the National Bureau of Standards.* 1954;53(1):19-26.
- III. Kaur L, Singh J, Singh H, McCarthy OJ. Starch–cassia gum interactions: A microstructure–Rheology study. *Food Chemistry.* 2008;111(1):1-10.