11.5 Application of Alginate in Formation of Biofilm

11.5.1 Preparation of Packaging Films

Wang *et al.*, [57], in their work, explained about commonly followed film-casting procedure also known as the solvent-casting method to prepare packaging films. In this method, they have prepared film using agar/alginate/collagen (A/A/C) where film solution was prepared by dissolving 1 g of each material (agar, alginate, and collagen) in 150 mL of distilled water. In this solution, 0.9 g of glycerol was vigorously mixed for about 25 min at 95°C. The film solution thus prepared was spread onto a glass plate (24 cm × 30 cm) and covered with Teflon layer and dried for 24 h at room temperature. After drying, it was unwrapped from the plate and collected. Prepared film samples were pretreated in a humidity chamber set at 25°C and 50% relative humidity for at least 48 h. Figure 11.4 exhibits the scanning electron micrograph of the alginate cast film.

11.5.2 Role of Alginate in Biofilm Formation

Alginate hydrogels are formed by exterior gelation using calcium ions as cross-linking agents. The cation reacts with guluronate blocks of alginate

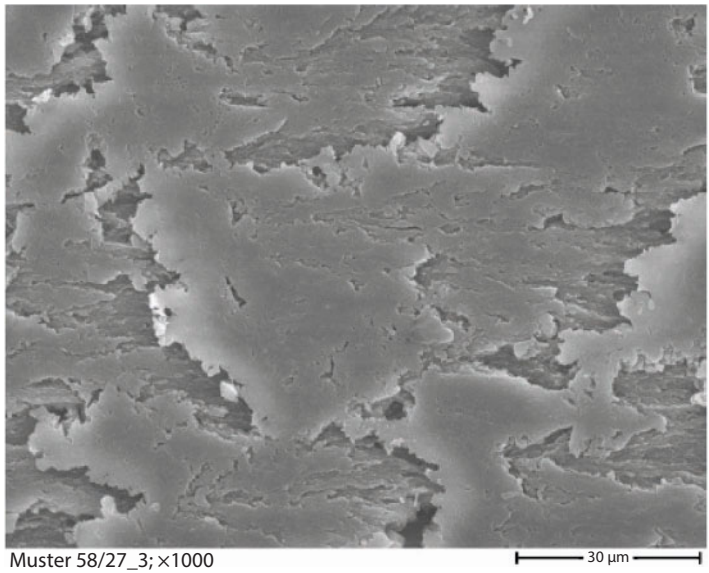

Figure 11.4 Scanning electron micrograph of alginate cast film [17].