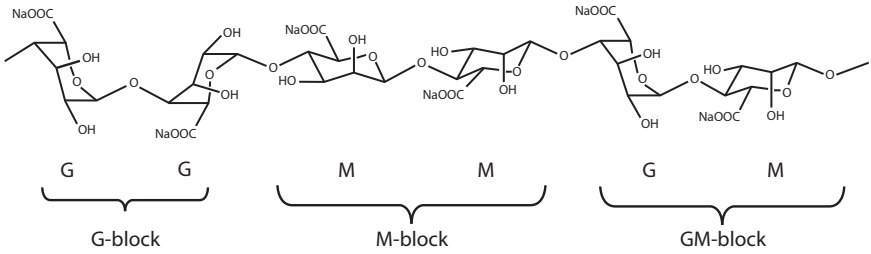

Figure 6.1 Structure of alginate showing all four glycosidic linkages, i.e., linkage in MM, GG, MG, and GM group.

G block has a gelling property. But the M content alginate was more immunogenic and more potent in inducing cytokine production as compared to G alginates. There are various characterization studies performed to gain knowledge about the confirmation of this uronate group. X-ray diffraction study was performed to observe the confirmation of mannuronate- and guluronate-rich alginate in homopolymeric blocks. It was found that guluronate possesses $^{1}C_{4}$ confirmation and mannuronate possesses $^{4}C_{1}$ confirmation. According to the arrangement of these blocks, the viscosity of alginate varies. The order of their viscosity is

$$MG < MM < GG$$

Alginates possess all four glycosidic linkages in their structure: (1) diequatorial linkage in MM group, (2) diaxial linkage in GG group, (3) equatorial axial linkage in MG group, and (4) axial equatorial linkage in GM group, as shown in Figure 6.1 [29].

6.3 Different Types of Alginates Used in Pharmaceutical Industries

Commercially, alginate is present in its different salt forms. Various salts of alginates are

1. Sodium alginate
2. Ammonium alginate
3. Potassium alginate
4. Calcium alginate
5. Magnesium alginate
6. Propylene glycol alginate