

and bioavailability of drugs. Among them, the residence time plays a vital role, because a sufficient time is required to transfer the maximum amount of API from drug delivery system to the body at site of administration. In case of mucosal membranes especially in gastrointestinal tract, prolonged mucosal attachment of dosage is achieved by using mucoadhesive polymers in delivery systems.

Mucoadhesive polymers should exhibit the following properties [49, 50].

1. Sufficient number of moieties on polymer backbone to interact with mucus in order to retain on the mucosal layer for an extended period of time
2. The polymer chains should be flexible enough to penetrate into mucin chains to achieve higher degree of chain entanglement with mucosal layer

3. The presence of charges could be advantageous as it will reduce the surface tension produced by local secretion at the site of action.
4. Should have surface energy properties that favor spreading on the mucus layer.
5. Should be nonirritant, economic, and should not degrade during the course of adhesion.

Various polymers have already been studied and some are being investigated for their mucoadhesive properties. For a better overview, mucoadhesive polymers are discussed below on the basis of their classification.

5.1. Classification of Mucoadhesive Polymers

Mucoadhesive polymers can be classified in many ways, as shown in Fig. 4.

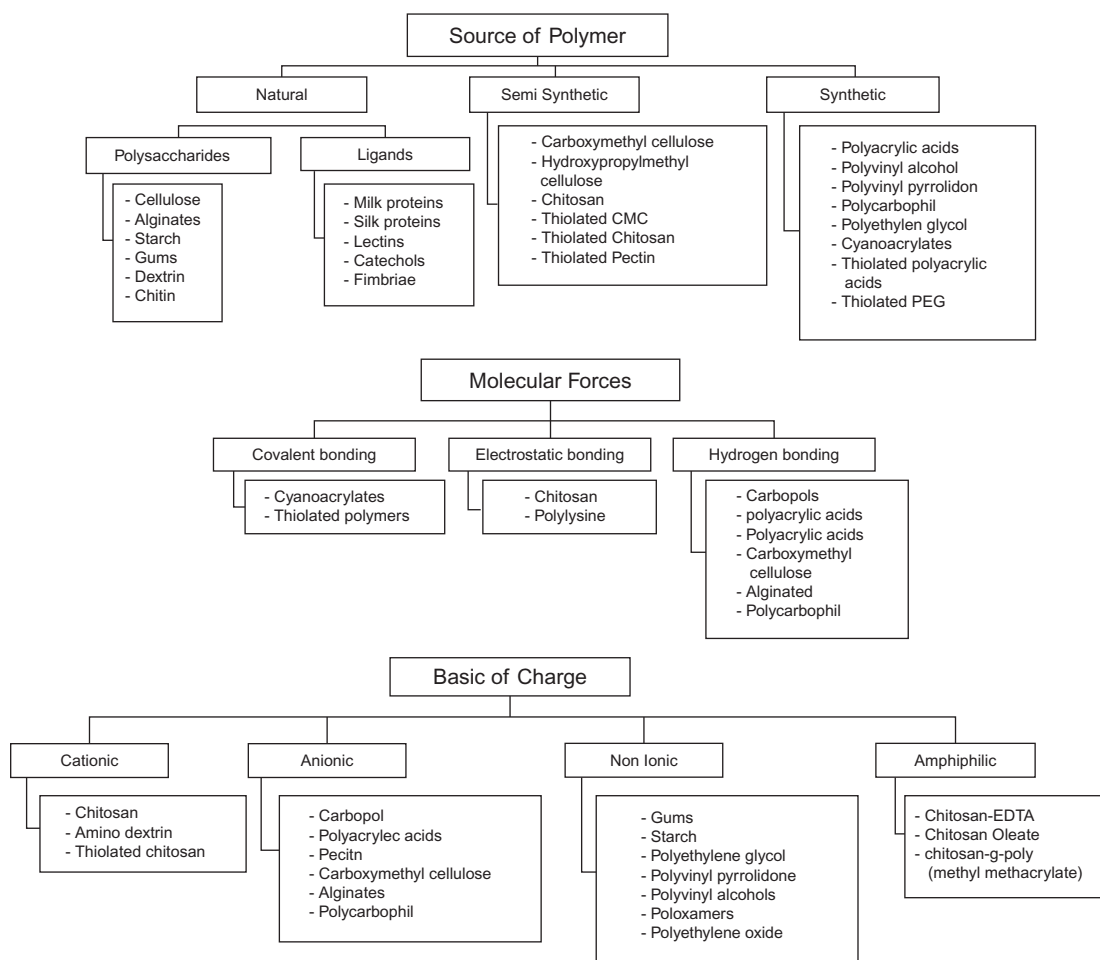


FIG. 4 Various ways to classify mucoadhesive polymers.