Problem 19: Stereochemistry (Organic synthesis – 1)

The fermentation of starch with malt produces ethyl alcohol. During this process, the hydrolysis of starch is catalyzed by the enzyme diastase present in malt to produce maltose, a disaccharide.

Maltose \((C_{12}H_{22}O_{11})\) reduces Tollen’s and Fehling’s reagents and it is oxidized by bromine in water to maltobionic acid \(((C_{11}H_{2}O_{10})COOH)\), a mono carboxylic acid. In order to deduce its structure, maltose was subjected to series of reactions:


19-2. Draw structures for maltose, maltobionic acid and C in a Haworth projection.