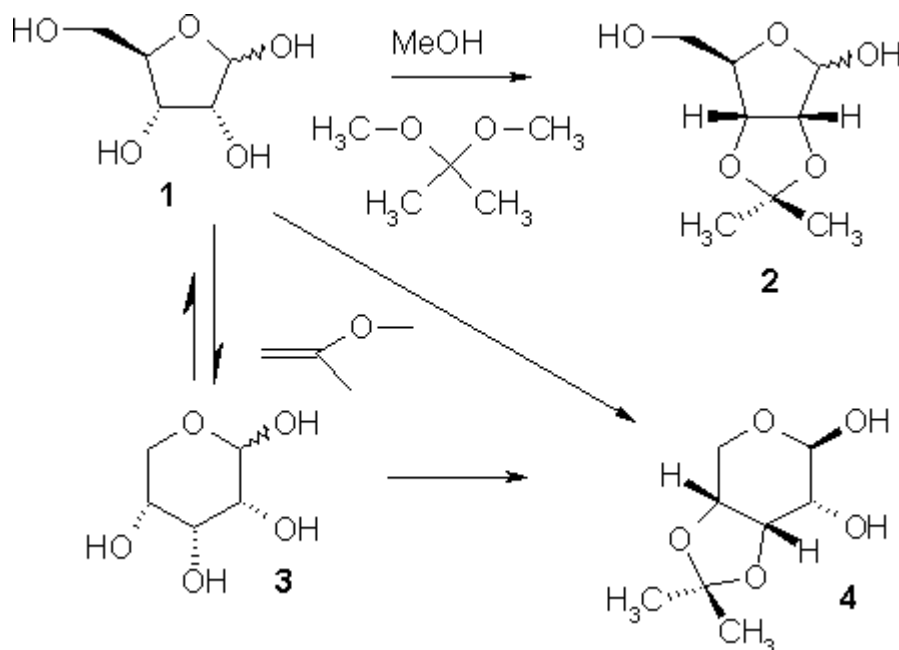


Carbohydrate acetalisation

In carbohydrate chemistry **carbohydrate acetalisation** is an organic reaction and a very effective means of providing a protecting group. The example below depicts the acetalisation reaction of D-ribose **1**. With acetone or 2,2-dimethoxypropane as the acetalisation reagent the reaction is under thermodynamic reaction control and results in the pentose **2**. The latter reagent in itself is an acetal and therefore the reaction is actually a **cross-acetalisation**.



Kinetic reaction control results from 2-methoxypropene as the reagent. D-ribose in itself is a hemiacetal and in equilibrium with the pyranose **3**. In aqueous solution ribose is 75% pyranose and 25% furanose and a different acetal **4** is formed.

Selective acetalization of carbohydrate and formation of acetals possessing atypical properties is achieved by using arylsulfonyl acetals. An example of arylsulfonyl acetals as carbohydrate-protective groups are phenylsulfonylethylidene acetals. These acetals are resistant to the acid hydrolysis and can be deprotected easily by classical reductive conditions.^[1]

References

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