

Answer on Question #42696, Chemistry, Other

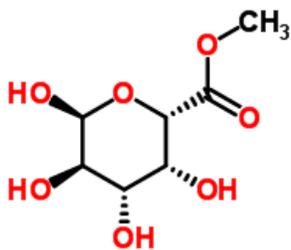
Question:

How to balance this equation?



Solution:

Obviously, the above equation expresses the reaction between some carbohydrate derivative ($C_7H_{12}O_7$) and ethanol (C_2H_5OH). For example, one of the many structural isomers with general molecular formula $C_7H_{12}O_7$ is D-Galacturonic acid methyl ester.



It can react with C_2H_5OH in different ways: transesterification ($C_8H_{14}O_7$ product), *O*-alkylation ($C_9H_{16}O_7$ product), addition with ring opening ($C_9H_{18}O_8$ product). However, no reaction can proceed with C_2H_5OH where product would have the same molecular formula ($C_7H_{12}O_7$) as that of the starting material. Exception is isomerization reactions. However, in these cases ethanol is not included in the reaction equation.

Hence, there is some mistake in the equation, or some products are missed.