If an organic compound contains more than one different functional groups or more than one like functional groups that are not equivalent (see equivalent ligands), and, if a reagent reacts exclusively or predominately with one of them, the reaction is said to be chemoselective. For example, both ketones and carboxylic acids can be reduced to alcohols.

eg:

1 contains a keto group and a carboxylic acid group. When 1 is treated with a reducing agent, three reactions are possible.

When 1 is treated with the reducing agent sodium borohydride (see hydride reagent), the only organic product observed is 2.

Evidently, sodium borohydride reacts with only one of the two functional groups in 1. Thus, the reaction of 1 with sodium borohydride is chemoselective.

see also regioselective, stereoselective

Contributors

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