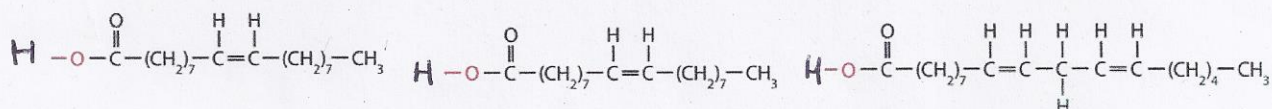


In a **hydrolysis** reaction, an ester and water react to form a carboxylic acid and alcohol.

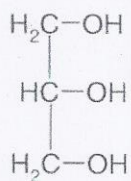
Here the ester is canola oil (see your handout for the structure).

The structures of the carboxylic acids formed during hydrolysis are the following:

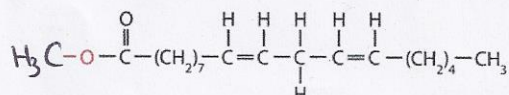
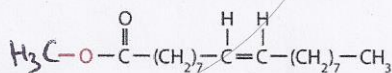
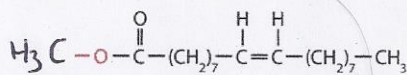


carboxylic acids

The alcohol formed during hydrolysis is glycerol:



During **esterification**, the three carboxylic acids react with methanol to produce three methyl esters. The structural formula of the methyl esters are the following:





Biodiesel

1₁



Biodiesel

1₂



Biodiesel

1₃



Biodiesel

1₄