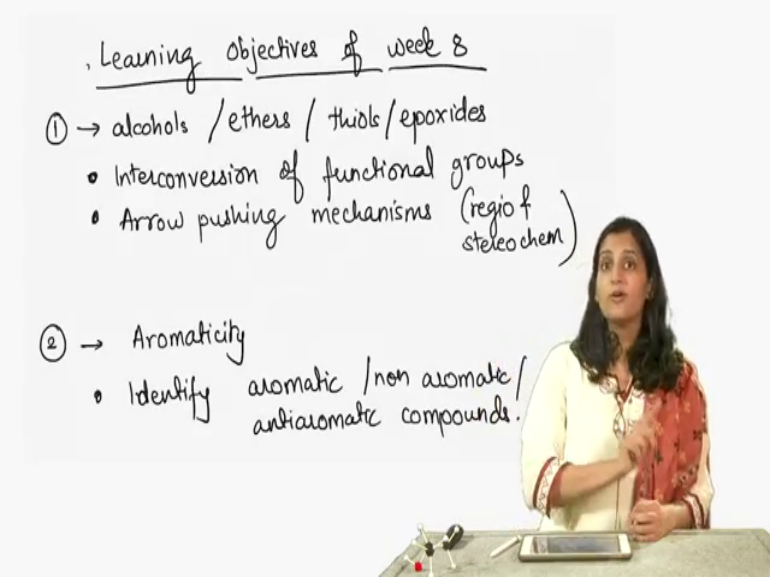
Introductory Organic Chemistry
Dr. Neeraja Dashaputre
Department of Chemistry
Indian Institute of Science Education and Research, Pune

Lecture – 45
Learning Objectives for Week – 8

(Refer Slide Time: 00:15)



Welcome to week 8 of Introductory Organic Chemistry. This is the last week and it is really dedicated to two sub-themes – the first theme is the alcohols and related functional group. So, these includes alcohol, thiols, ethers, epoxides all of them are club together and we are going to learn the reactions of these compounds. Apart from these the second sub-theme is aromaticity, okay. When we think of alcohols one of the most common usage of alcohol really that comes to your mind is actually ethanol which is an additive in drinking alcohol.

But, alcohols play a very important role other than drinking alcohol. And, so for example, alcohols are very important because they can be converted to many other functional groups. So, these includes alkenes, alkyl halides, aldehydes, ketones, carboxylic acids, esters most of these functional groups that contain an oxygen can be inter converted from alcohols to that particular functional groups. So, this is kind of not a one way conversion.

So, alcohols can be converted to these compounds and these compounds can also be converted back to alcohols. So, that's why alcohols play a very important role in synthetic chemistry in these inter conversion of organic functional groups, okay. Alcohols, the OH

functional group can be also found in various biological system. So, for example, most of the carbohydrate molecules will have an OH, free hydroxyl group that is present in that carbohydrate molecule.

Amino acids like Serene do possess OH which takes part in most of these important biological reactions. So, the OH's in biological systems actually take part in hydrogen bonding and this hydrogen bonding is very important in various interactions. So, for example, in drug and binding site interaction the hydrogen bonding can play a very huge role in order for the drug to bind effectively to the binding site and thus OH, the functional group OH in biology is very important.

Other than that you will also hear alcohols being used for medicinal purposes and that is because of their low toxicity. They are used as disinfectants and industrial solvents and there are many more uses of alcohols that's why this chapter is dedicated to alcohols and we will also go over some of the derivatives of alcohols like ethers and epoxides and we will look at these particular functional groups in detail.

The second part of this week is dedicated to Aromaticity. Now, we are not going to delve very much deep into the reactions of aromatic compounds, but we are going to first just get introduced to aromatic compounds and we are going to identify aromatic compounds and what renders them the stability; there is an increase stability for aromatic compounds as compared to other compounds. And we are going to identify which compounds are aromatic, how to classify compounds as aromatic versus non-aromatic versus anti-aromatic and that's where we will stop; we will not be covering the reactions of aromatic compounds that is for the next course.

In this particular chapter, when we are going over reactions of alcohols make sure that we are again paying attention to arrow pushing mechanisms, make sure that you are paying attention to the regio and stereochemistry of these reactions as we go into the reactions of alcohols, ethers, epoxides, etcetera, okay. So, welcome to week 8 we are going to have fun learning alcohols, ethers, epoxides and aromaticity.