Figure 2 shows an SEM image of the Pt/mordenite zeolite catalyst. The SEM micrograph indicates that the catalyst has a homogeneous morphology. The surface area plays a key role in the catalytic activity. Higher surface area improves the adsorption of reactants. The catalyst's surface area of the catalyst was measured by BET surface analysis. The surface area of Pt/mordenite zeolite was 296.69 m²/g. The XRD pattern of Pt/mordenite zeolite (Figure 3) exhibits the most intense diffraction peaks at 2θ = 6–30°, and it thus confirmed that the MOR structure of zeolite is the MOR as well as and its good crystalline nature being good. Hence the following subsections tell how the reaction parameters affect the catalytic performance of pure n-pentane as the feed, which is demonstrated by catalytic activity and isomerization selectivity.

The hydroisomerization of pure n-pentane and n-pentane in a binary mixture of pentane isomers was performed by the Pt/mordenite catalyst under a wide range of experimental conditions. The conversion products comprise both isomerization and cracking products. The following subsections cover how the reaction parameters affect the catalytic activity and isomerization selectivity.

Figure 4 shows the conversion of n-pentane as a function of reaction temperature. The test reactions were performed in an H₂ environment at temperatures ranging from 150 °C to 350 °C and at atmosphere pressure. The catalyst showed a high catalytic activity, particularly in the temperature range of 220–350 °C.

Because of the low activity of the catalyst and the low reactivity of n-pentane, the conversion of n-pentane is negligible at temperatures below 180 °C. By increasing the temperature from 180 °C to 220 °C, the conversion of n-pentane increased greatly; however, a further increase in increasing the temperature slowly rises to further results in a slow conversion. This can be caused by an increase in the number of sites that can be activated for the reaction when the temperatures increase. The rate of conversion increases with increasing temperature because of thermodynamic restrictions at higher temperature. In other words, increasing the temperature always means increasing results.

Comment [A1]: The subject-verb agreement requires the use of singular past tense "was" here since surface area is singular. Please note that "were" is a plural conjugation.

Comment [A2]: Ranges are presented using an en dash, not a hyphen.

Comment [A3]: The proper use for "consist" is "to consist of" whereas for "comprise" it is just "comprise(s)." For example, "the soups comprise vegetables."

Comment [A4]: Typically n-pentane is written with a hyphen. Also, since you used a hyphen earlier, the notation or spelling should be the same throughout the document.
in a higher reaction rate. Thus at low temperature, the actual conversion will be far below the equilibrium conversion because of low reaction rate. On the contrary, in contrast, at higher temperature, the equilibrium conversion will be more easier due to the high reaction rate.