The smallest conversions occurred when the ZSM-5 zeolite was used as support, since the ammonium cation was present instead of hydrogen, thus the process had to be heated in a vacuum at 770 K for at least 5 h before impregnation of platinum, that without commenting that it is the least acidic according to the Si:Al ratio. Comparing the acidity in terms of the SiO_2:Al_2O_3 molar ratio of the zeolites used: H-β (300), USY (80) and ZSM-5 (30). However, an evaluation of the effective acidity of these zeolites should be made, which differentiates the Brönsted acid sites from the Lewis ones (Strong and weak).

5. Conclusions

The H-β zeolite, having a medium pore size (0.668 nm) and low acidity is the zeolite that most converts hydrocarbons, presenting good selectivity towards medium products. USY zeolites of medium acidity with the largest pore cavity (0.74 nm) usually show good selectivity towards branched isomers. However, if its acidity is not controlled it can lead to excessive gas formation. ZSM-5 zeolites have the highest acidity and specific area, due to no previous surface activation so it is the less convenient for these processes.
It was found that zeolites H-β (cp811c-300) are more promising to produce biodiesel from soybean oil than USY (CBV 780) and ZSM-5 (CBV-3024e). Then, in order to improve the conversion, it is important to evaluate the USY zeolite with another operational conditions (temperature, pression and reaction times), and ZSM-5 in protonated phase.

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