

STUDY OF VARIABLES IN THE PRODUCTION OF BIODIESEL ETHYLIC-METHYLIC FROM RESIDUAL SOYBEAN OIL

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INTRODUCTION

- ❑ Many scientific studies have shown higher yields when using methanol as a molar ratio in the biodiesel synthesis process compared to ethanol, it is based on the decantation stage due to the immiscibility in the mixture, separating the material into two phases, glycerin and biodiesel, facilitating the separation in purification process (MENESES et al 2012).
- ❑ However, methanol is a toxic and imported material while ethanol has low toxicity and is easily produced in Brazil (PEREIRA and ANDRADE, 1998).

OBJECTIVE

- ❑ This study aimed to analyze during the biodiesel synthesis the influence of the ethyl-methyl composition in order to increase the mass yield.

METHODOLOGY

- ❑ The methodology was divided into qualitative and quantitative, part with research in recent sources that address the theme, verifying that the synthesis of biodiesel via methyl has high yields in low molar ratios, thus formulating an experimental design 2^3 totaling 8 experiments in triplicate, with variations: molar ratio (RM) oil: alcohol (1: 3 and 1: 9), mass ratio ethanol / methanol (10:90 and 30:70) and percentage of catalyst, NaOH, (0.5 and 1.5%), keeping the reaction time (60 minutes), temperature (60 ± 2 °C), magnetic stirring, pH (7.0) and the residual oil mass constant.

RESULTS

Experience	Catalyst %	Cat. (g)	Molar ratio	ratio ethanol/methanol	Biodiesel (g)	Yield (%)
1	0,5	1	01:03	10:90	182,5	91,25
2	1,5	3	01:03	10:90	117,28	58,64
3	0,5	1	01:09	10:90	187,4	93,70
4	1,5	3	01:09	10:90	154,37	77,19
5	0,5	1	01:03	30:70	148,13	74,07
6	1,5	3	01:03	30:70	96,21	48,11
7	0,5	1	01:09	30:70	181,16	90,58
8	1,5	3	01:09	30:70	141,6	70,80

CONCLUSION

- ❑ It was concluded that for yields above 90%, the greatest influence is on the percentage of catalyst used, the higher, the lower the result. Regarding the use of the mixture between alcohols, these in the established percentages, did not present negative variations, being viable its use by ethanol is less toxic which facilitates its manipulation.

REFERENCE

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