Lipases (triacylglycerol-acylhydrolases) are enzymes capable of catalyzing a variety of reactions, such as the partial or complete hydrolysis of triacylglycerols and reactions of esterification, transesterification and interesterification of lipids. Due to these properties, lipases are applicable to a wide range of industrial sectors. The aim of this work was to select lipase-producing filamentous fungi with esterification activity. Twelve strains of filamentous fungi belonging to the genera *Aspergillus*, *Penicillium* and *Thricoderma* were used. The cultivation medium was prepared using soybean meal (85%) and soybean peel (15%), 60% of humidity and pH of 4.5. The medium was inoculated with $2 \times 10^7$ spores/g medium. The fermentations were conducted at 30 ºC, during four days. Enzymes were extracted from fermentative medium with phosphate buffer pH 7.0 and freeze dried to obtain crude extract. Esterification activity was accomplished using ethanol and oleic acid reaction system. Three strains of *Aspergillus*, denominated strains O-5, O-4 and *Aspergillus* *fumigatus* presented the higher results of activity of esterification among microorganisms tested, with activities of 465.02 U/g, 364.58 U/g and 182.00 U/g, respectively. Comparing the activity for esterification of enzymes obtained from *Aspergillus* strains with commercial enzymes (1217.07 U/g and 173.86 U/g), it was observed that the selected fungi produced lipase with potential of use in esterification reaction, assuming that the enzyme extracts were crude comparing to the purified commercial enzymes. The esterification activity may increase as a result of the optimization of resources and processes. The lipase produced by *Aspergillus* strains possessed potential for application.