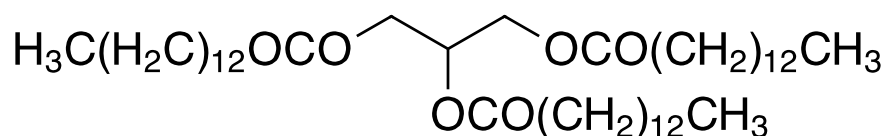


Isolation of Trimyristin from Nutmeg

TUD Department of Chemistry

Trimyristin (structure below) is a triacylglycerol (triacylglycerols are also called triglycerides) which is composed of three myristic acids esterified to a glycerol molecule. Trimyristin comprises about 20–30% of the mass of the spice nutmeg. We will isolate trimyristin by solvent extraction from ground nutmeg



Place 400 mg of ground nutmeg into a 10 mL long-necked round bottom flask and add 5 mL of methyl t-butyl ether (MTBE) (caution: MTBE is flammable). Attach an air condenser to the flask, clamp the flask, and heat in a warm water bath so the solvent boils very gently. Reflux the solution for 10–15 minutes. Be careful to heat gently so that the solvent does not boil away. Cool the solution and transfer the MTBE (leave behind as much of the solids as possible) to a tared 25 mL suction flask through a Pasteur pipette containing a plug of glass wool. Rinse the flask and solids twice with a few mL of MTBE and add the rinsings to the suction flask. Evaporate the MTBE by stoppering the suction flask and applying water aspirator vacuum (it may help to gently warm the flask with warm water or your hand). Be sure to completely evaporate all of the MTBE. Reweigh the flask + trimyristin and determine the yield. Recrystallize the crude trimyristin from a small amount (~1 mL) of hot acetone and collect by vacuum filtration. Determine the yield of the purified product, determine its melting point, and obtain an IR spectrum.