

Piperine is a natural product in black pepper which makes you sneeze. In this experiment, Piperine was synthesized through a four step synthesis using several common organic reactions. In our first step, an allylic bromination was carried out using N-Bromo-succinimide (NBS) to convert methyl crotonate into methyl 4-bromo-2-butenoate. That product then underwent a base-induced aldol condensation using triethyl phosphite, piperonal, dimethoxyethane, and a mixture of methoxide/methanol. The result of step 2 is a unsaturated ester which is saponified to become an acid chloride at the end of step 3. Lastly, we completed an aminolysis reaction to produce piperine, our final product. We also changed two steps to make our project more green by changing solvent and reagents throughout our synthesis. We chose to change the solvent in step 1 from carbon tetrachloride to the more green cyclohexane, and then to change our step 3 reagent from sodium methoxide/methanol to sodium hydroxide/water and heat.