ABSTRACT

Flutamide is an anti-androgenic used for drug combination in treating prostate cancer. Flutamide can be synthesized using 4-nitro-3-triflouromethyl aniline and derivative of isobutyric acid. The experiment is conducted to optimize the synthesis of flutamide using 4-nitro-3-trifluoromethyl aniline and derivative of isobutyric acid with pyridine and triethylamine as solvent.

Flutamide was synthesized using 4-nitro-3-trifluoromethyl aniline and derivative of isobutyric acid (isobutyric acid, isobutyryl chloride and isobutyric anhydride) with pyridine and triethylamine as solvent under reflux condition at 75^{o}C using isobutyryl chloride as starting material, 90^{o}C using isobutyric anhidride as starting material, and 90^{o}C & 140^{o}C using isobutyric acid as starting material. Product of synthesis was recrystallized using toluene. The mixture is filtered using Buchner funnel, kept under room temperature until the pale yellow needle-shaped crystal was obtained. The purity of flutamide crystal was checked using Thin Layer Chromatography and melting point. The structure of flutamide crystal is elusidated using Chromatography Gas- Mass Spectrometry.

Result of the experiment showed flutamide can be synthesized using 4-nitro-3-trifluoromethyl aniline and isobutyric anhydride with yield 22,33%. Reaction between 4-nitro-3-trifluoromethyl aniline and isobutyric acid under reflux condition at 90^{o}C & 140^{o}C for 240 minutes can not produced flutamide. The yield obtained from reaction between 4-nitro-3-trifluoromethyl aniline and isobutyryl chloride was 73,04% using pyridine as solvent and 6,19% using triethylamine as solvent.

Keywords : flutamide, isobutyric anhydride, isobutyryl chloride, pyridine, triethylamine