



جمهورية العراق
وزارة التعليم العالي والبحث العلمي
جامعة الموصل / كلية العلوم
قسم الكيمياء

تشبيد بعض المركبات الحلقية غير المتجانسة الجديدة المشتقة من
الهيدرازيد سيانو حامض الخليك

إستبرق محمد عبدالله محمود المولى

رسالة ماجستير
علوم الكيمياء / الكيمياء العضوية

بإشراف
الأستاذ
الدكتور عمار حسين عبدالله السبعوي

قرار لجنة المناقشة

نشهد أننا اعضاء لجنة التقويم والمناقشة قد اطلعنا على هذه الرسالة وناقشنا الطالبة (إستبرق محمد عبدالله محمود المولى) في محتوياتها وفيما له علاقة بها بتاريخ // / ٢٠٢ وأنها جديرة لنيل شهادة الماجستير في اختصاص علوم الكيمياء / الكيمياء العضوية.

التوقيع

عضو

التوقيع

رئيس اللجنة

التوقيع

عضو (المشرف)

التوقيع

عضو

قرار مجلس الكلية

اجتمع مجلس كلية العلوم بجلسته المنعقدة في / 202
وقرر التوصية بمنحها شهادة الماجستير في علوم الكيمياء / الكيمياء العضوية.

التوقيع

عميد الكلية

أ.د. هيام عادل إبراهيم

٢٠٢ //

التوقيع

مقرر مجلس الكلية

أ.م.د. محمد صبحي حميد

٢٠٢ //

Summary

The thesis included the preparation of new heterocyclic compounds derived from hydrazide-hydrazone, starting with the preparation of the starting material (X_3) from three steps. (4-(Benzylsulfonyl)acetophenone (X_{2b}) from the reaction of benzylthiol with 4-fluoroacetophenone in the presence of potassium hydroxide and absolute ethanol to prepare (X_{2a})(4-(Benzylthio)acetophenone) and then reacting it with acetic acid and (30%) of hydrogen peroxide, the third step included the reaction of the compound (X_1) with the compound (X_{2b}) to give the basic starting material hydrazide- hydrazone (X_3), which was introduced in five different paths to prepare many organic compounds.

The first pathway: It included the preparation of new derivatives of α , β -unsaturated carbonyl compounds (X_8 - X_4) through the reaction of hydrazide-hydrazone (X_3) with substituted benzaldehyde in a basic medium of triethylamine and using absolute ethanol as a solvent

The second pathway: the products of the first path were introduced as a new starting material in a reaction with malononitrile in the presence of triethylamine as a base and using absolute ethanol as a solvent to give new derivatives to 2-pyridone compounds (X_{13} - X_9).

The third pathway: It included the preparation of five heterocyclic compounds, which are thiophene compounds (X_{16} - X_{14}) through the interaction of the starting material hydrazide - hydrazone (X_3) with cyclic ketones in the presence of the sulfur element and using absolute ethanol as a solvent and sodium hydroxide as a base.

The fourth pathway: It included the preparation of hexagonal heterocyclic compounds represented by coumarin compounds (X_{18} , X_{20}) through two methods. The first method included two steps. The first step included the preparation of imine compounds (X_{17} , X_{19}) through the reaction of the starting material (X_3) with 2-hydroxide naphthaldehyde or 2- benzaldehyde hydroxide

using triethylamine as a base and absolute ethanol as a solvent. The second step involved the reaction of the product of the first step (imine) with concentrated HCl acid to obtain coumarin compounds. The second method included the reaction of 2- hydroxide naphthaldehyde or 2- hydroxide benzaldehyde with sodium acetate and acetic acid to obtain coumarin compounds.

The fifth pathway: It included the preparation of some various compounds, including pyrazole derivatives (X_{21} - X_{27}), through several steps. The first step involved preparing compounds (X_{21} , X_{24} , X_{27}) from the reaction of the starting material (X_3) with potassium hydroxide (KOH) in the solvent dimethylformamide (DMF), and addition phenyl isothiocyanate (PhCNS) or carbon disulfide (CS_2) to the reaction mixture to form intermediate compounds. Then, dimethyl sulfate ($(CH_3)_2SO_4$) was added to these compounds. As for the second step, the compounds (X_{22} , X_{23} , X_{25} , X_{26}) were prepared by reaction of compounds (X_{21} , X_{24}) once with hydrazine hydrate (99%), and once with phenylhydrazine to form new pyrazole derivatives.

All previous reactions were monitored using thin layer chromatography (TLC), and all newly synthesized compounds were confirmed by physical methods and spectral measurements (FT-IR, ^1H -NMR, ^{13}C -NMR). Finally mechanistic routes for all the reaction were suggested.

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Synthesis of Some New Heterocyclic Compounds derived from Cyanoacetic Acid Hydrazide

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M.Sc. Thesis

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