

OBTAINING NITROGEN CONTAININ DIKARBOKSILAT

Fariz Amirli¹, N.A.Guliyeva², G.Sh.Mammadova³, H.N.Guliyev⁴, T.N. Akylbekova⁵

¹ Azerbaijan State Oil and Industry University, Baku, Azerbaijan

⁴ Azerbaijan State Oil and Industry University, Baku, Azerbaijan

⁵ Azerbaijan State Oil and Industry University, Baku, Azerbaijan

¹ fariz.emirov@asoiu.edu.az, <http://orcid.org/0000-0002-9095-2982>

² narmina.guliyeva@asoiu.edu.az, <http://orcid.org/0009-0006-4571-9520>

³ gulcannat.mammadova.s@asoiu.edu.az, <http://orcid.org/0000-0001-9958-7232>

⁴ <http://orcid.org/0009-0008-6077-3925>

⁵ <http://orcid.org/0000-0002-6028-6229>

ABSTRACT

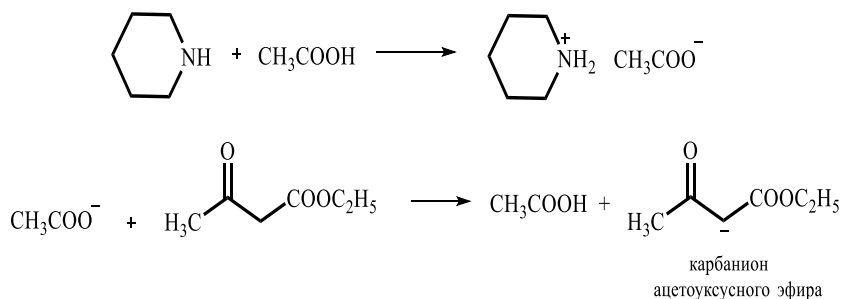
We have conducted research into the synthesis and analysis of nellylated-indazole compounds. These compounds were produced through a process involving substituted hydroxycyclohexanones, hydrazine hydrate, and phenacyl bromide. Our investigation revealed that, depending on the specific structure of the compounds involved, the reaction can proceed via both nitrogen and oxygen alkylation pathways. The examination of the reactions between 2,6-dicarboxylates and amine derivative hydrochlorides revealed a novel finding: the employment of potassium carbonate as a base facilitates the desired direction of heterocyclization for the first time.

On the basis of 3-component condensation, diacetyl (diethyl-oxycarbonyl) substituted hydroxycyclohexanones with thiosemi-derivatives and bromide were obtained. Based on the results, methods of obtaining derivative dicarboxylates were developed, and the structure of the latter depends on electrophilic activity. The structural characteristics of all obtained derivatives were studied and the structures were proved by the method of rengenostrophical analysis.

Keywords: benzaldehyd, acid, heksanol, antimikrobyal.

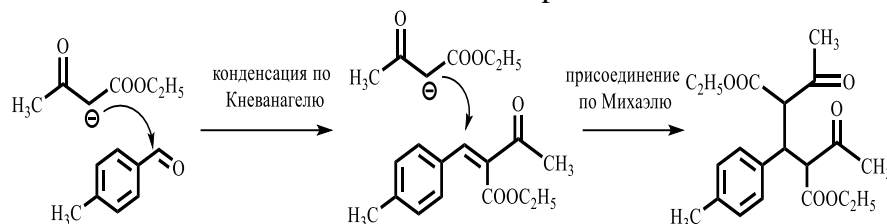
Introduction

Based on our condensation of methylbenzaldehyde with a reagent such as acetoacetic ester in ethanol in the presence of an amine compound with a spatial activator as acetic acid, we obtained the required spatial isomer [1].

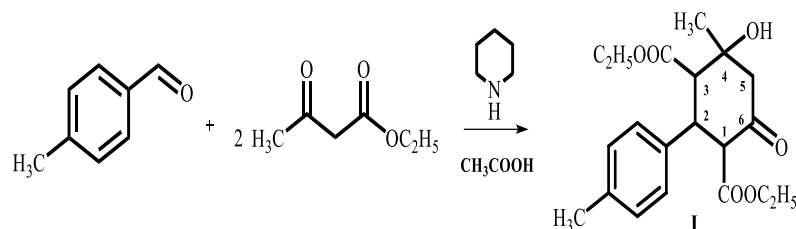


The methylene group, both in acetylacetone and in acetoacetic ester, as a result of the

electron-withdrawing effect of carbonyl-containing groups associated with it, has increased acidity [2], has sufficient stability, is stabilized, and is converted into the carbanion form. These carbanion forms transform into resonance structures in space.

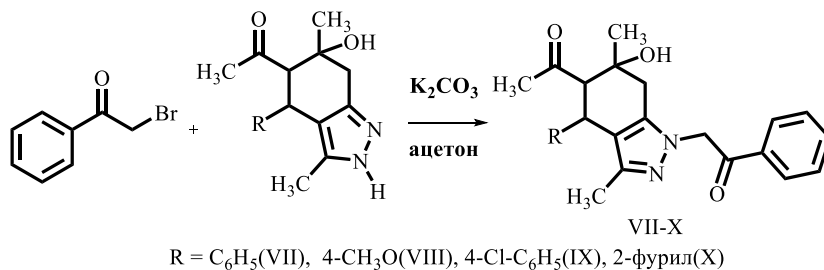


The site of a nucleophilic directed attack in Michael addition is designated and is a carbon center experiencing a deficiency of electron density, which is facilitated by the electron-withdrawing influence of neighboring two carbonyl-containing groups [3].



Method for the preparation of 4-aryl-4,5,6,7-tetrahydro-2H-indazoles with phenacyl bromide [4].

Additionally, we investigated the orientation of the reaction involving 2-H-indazole-diacetyl compounds of substituted- cyclohexanones with a synthon by phenacyl group. This reaction took place with potassium.



XRD, single crystal helped to decipher and determine placement of pyrrole and pyridine atomic centers of the heterocycle, thus alkylation with phenacyl bromide occurs at the nitrogen in the pyridine ring, which is more nucleophilic [5].

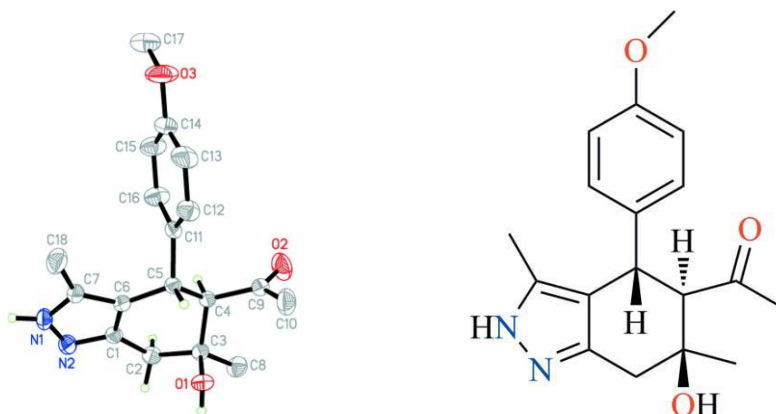
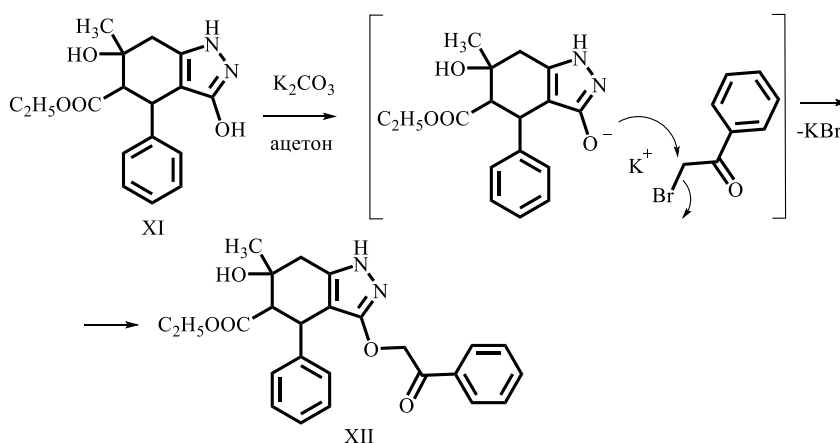


Fig.1 Structure of the resulting product

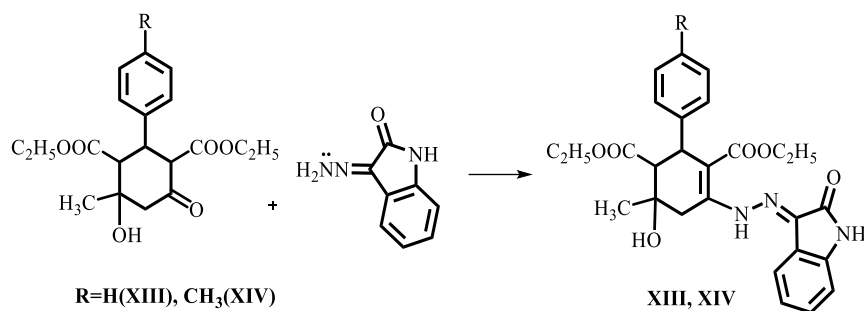
The reaction between phenacyl bromide and 3,7-dihydroxy-6-methylcarboxylate in boiling acetone, facilitated by K_2CO_3 , yields the oxy-alkylation product: hydroxymethyl-1H-indazole-5-carboxylate.



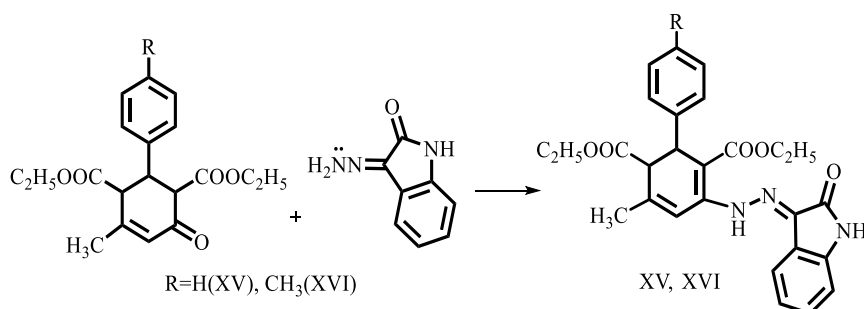
The presence of a hydroxyl group with acidic properties leads to the formation of an anion when acted upon by a base. The negative charge is predominantly distributed on the oxygen atom due to its higher electronegativity. Additionally, acetone, it is O-alkylation. In the mass spectrum of compound [1,6], a primary peak (m/z 434) is observed, corresponding to the molecular ion [6,7].

Reactions of hydrazone of isatin with diethoxycarbonyl-substituted hydroxycyclohexan(ones)

It has been determined that the reaction between diethyl-2-aryl-6-hydroxy-6-methyl-4-oxocyclohexane-1,3-dicarboxylates and the hydrazone of isatin results in the formation of diethyl-3-hydroxy-3-methyl-5-(2-(2-oxoindolin-3-ylidene)hydrazinyl)-1,2,3,4-tetrahydro-[4'-R-1,1'-biphenyl]-2,6-dicarboxylates with yields ranging from 83% to 87%.



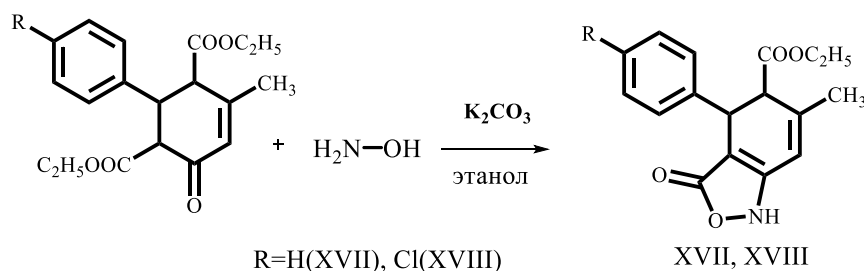
The reactions involving the hydrazone and diethyl methyl-3-oxo-dicarboxylates have been investigated. These compounds feature an α , β -unsaturated ketone moiety, allowing for the potential nucleophilic addition of amines to the C=C bond within this fragment.



It has been established that the amine group of the hydrazone derivatives interacts with the ketone group of the alicycle, forming the corresponding enamine. Therefore, azo-Michael addition to the double C=C bond, does not occur. The products of the reactions, diethyl-3-methyl-dicarboxylates- were isolated with yields of 69-79%. It has been observed that the reaction rate of the hydrazone of isatin increases when catalytic amounts of hydrochloric acid are used.

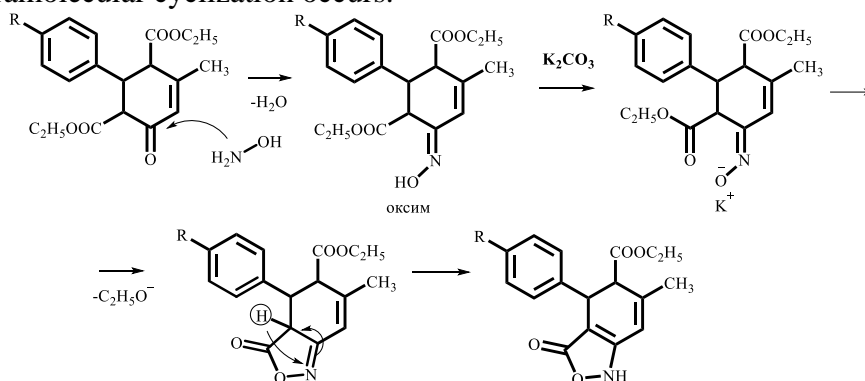
The reaction of diethyl-R-4-hydroxy-4-methyl -dicarboxylates with hydroxylamine has been investigated.

Hydroxylamine is a convenient and readily available synthon for the synthesis of heterocyclic compounds. If the reaction of methylcyclohexanones with hydroxylamine leads to the corresponding isoxazoles, then with diethyl 2-R-4-hydroxy-4-methyl-6-oxocyclohexane-1,3-dicarboxylates, oximes are formed. Given the above, we have studied the condensation of diethyl 5-methyl-dicarboxylates with hydroxylamine in the presence of potassium carbonate. The reaction is accompanied by the formation of ethyl 6-methyl-3-oxo-4-aryl-1,5-carboxylates.



Indeed, it is likely that initially an oxime is formed; then an excess of potassium carbonate

converts the hydroxy group into an anionic form, thereby increasing its nucleophilicity. In the final stage, intramolecular cyclization occurs.



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AZOT TƏRKİBİ DİKARBOKSİLATIN ALINMASI

Fariz Ə.Əmirli¹, N.A.Quliyeva², G.Ş.Məmmədova³, H.N.Quliyev⁴, T.N. Akılbekova⁵

¹ Azərbaycan Dövlət Neft və Sənaye Universiteti, Bakı, Azərbaycan

⁴ Azərbaycan Dövlət Neft və Sənaye Universiteti, Bakı, Azərbaycan

⁵ Azərbaycan Dövlət Neft və Sənaye Universiteti, Bakı, Azərbaycan

¹ fariz.emirov@asoiu.edu.az, <http://orcid.org/0000-0002-9095-2982>

² narmina.guliyeva@asoiu.edu.az, <http://orcid.org/0009-0006-4571-9520>

³ gulcannat.mammadova.s@asoiu.edu.az, <http://orcid.org/0000-0001-9958-7232>

⁴ <http://orcid.org/0009-0008-6077-3925>

⁵ <http://orcid.org/0000-0002-6028-6229>

XÜLASƏ

Nellilatlanmış-indazol birləşmələrinin sintezi və təhlili ilə bağlı tədqiqatlar aparmışıq. Bu birləşmələr əvəz edilmiş hidrosikloheksanonlar, hidrazin hidrat və fenasil bromidin köməyi ilə istehsal edilmişdir. Tədqiqatımız olub ki, iştirak edən birləşmələrin spesifik quruluşundan asılı olaraq, reaksiya həm azot, həm də oksigen alkilləşmə yolları ilə gedə bilər. 2,-dikarboksilatlar və amin törəmə hidroxloridlər təsir reaksiyalarının tədqiqi yeni bir tapıntı aşkar etdi: kimi əsas kalium karbonatın ilk dəfə olaraq heterosiklləşmənin dəyişməsinə asanlaşdırmaq üçün.

3 komponentli kondensasiya əsası diasetil (diet-oksikarbonil) tiosemi törəmələri və bromid ilə əvəzlənmiş hidrosikloheksanlar alınmışdır. Nəticələr əsasında törəmə dikarboksilatların alınması üsulları işlənmişdir və sonuncunun strukturu elektrofil aktivləşdirilərək əldə edilmişdir. Alınan bütün törəmələrin struktur strukturları öyrənilmiş və struktur analizləri ilə müəyyən edilmişdir.

Açar sözlər: benzaldehid, turşu, heksanol, antimikrob

ПОЛУЧЕНИЕ АЗОТСОДЕРЖАЩЕГО ДИКАРБОКСИЛАТА

Фариз Амирли¹, Н.А.Гулиева², Г.Ш.Маммедова³, Х.Н.Гулиев⁴, Т.Н. Акылбекова⁵

¹ Азербайджанский Государственный Университет Нефти и Промышленности, Баку, Азербайджан

⁴ Азербайджанский Государственный Университет Нефти и Промышленности, Баку, Азербайджан

⁵ Азербайджанский Государственный Университет Нефти и Промышленности, Баку, Азербайджан

¹ fariz.emirov@asoiu.edu.az, <http://orcid.org/0000-0002-9095-2982>

² narmina.guliyeva@asoiu.edu.az, <http://orcid.org/0009-0006-4571-9520>

³ gulcannat.mammadova.s@asoiu.edu.az, <http://orcid.org/0000-0001-9958-7232>

⁴ <http://orcid.org/0009-0008-6077-3925>

⁵ <http://orcid.org/0000-0002-6028-6229>

РЕЗЮМЕ

Нами проведены исследования по синтезу и анализу аннеллированные соединений индазола. Эти соединения были получены с помощью процесса с использованием замещенных гидроксиклогексанонов, гидразингидрата и фенацилбромидмм. Наши исследования показали, что в зависимости от особенностей строения входящих в состав соединений реакция может протекать как по азотному, так и по кислородному пути алкилирования. Изучение реакций между 2,6-дикарбоксилатами и гидрохлоридами производных амина позволило сделать новый вывод: использование карбоната калия в качестве основания впервые идет желаемое направлению гетероциклизации.

На основе трехкомпонентной конденсации получены диацетил (диетоксикарбонил)замещенные гидроксциклогексаноны с тиосепопроизводными и бромидом. На основании результатов были разработаны методы получения производных дикарбоксилатов, структура которых зависит от электрофильной активности. Изучены структурные характеристики всех полученных производных и подтверждено их строение методом рентгоструктурного анализа.

Ключевые слова: бензальдегид, кислота, гексанол, антимикробный препарат.