BIS(2-(2-IZOPROPIL-5-METILFENOKSI)-2-OKSOETIL) OKSALAT SINTEZI

Choriyev Azimjon Uralovich, Abdushukurov Anvar Kabirovich, Naxatov Innat
Faculty of Chemistry- biology, Karshi state university, Kuchabog street, 17. Karshi, Uzbekistan Faculty of Chemistry, NUUz, Students town St. University 4, Tashkent, Uzbekistan
e-mail: azimjon-organik@mail.ru

Annotatsiya

2- Izopropil-5-metilfenol ko'plab reaktsiyalarda, asosan geterosiklik birikmalar sintezida, masalan, pirimidinlar, kaleks- arenlar va ion suyuqliklarida qo'llaniladi. Ishning maqsadi O-xloratsetiltimol bilan oksalat kislotaning dinatriyli tuzining reaksiyasini o'tkazish va reaksiya mahsulotini fizik-kimyoviy va spektral xususiyatlarini aniqlashdir.

Аннотация

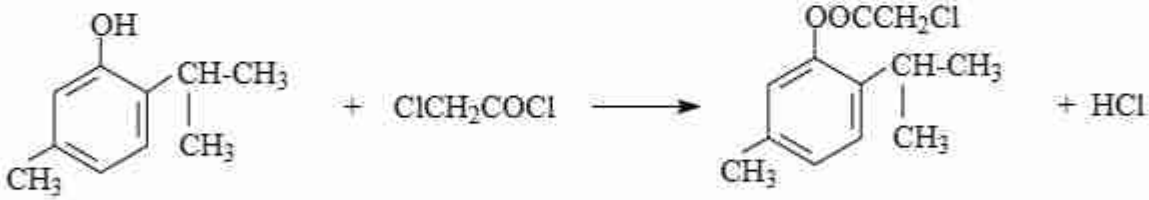
2- Изопропил-5-метилфенол используется во многих реакциях, главным образом в синтезе гетероциклических соединений, например, пиримидинов, калекс- арена и ионных жидкостей. Целью работы является проведение реакции О-хлорацетилтимола с оксалатовой кислотой и определение физико-химических и спектральных свойств продуктов реакции.

Annotation

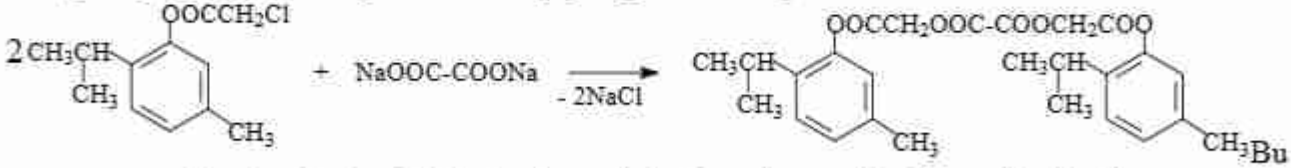
2- Izoprophyl-5-methylphenole is used in many reactions, mainly in the synthesis of heterocyclic compounds, for example, pirimydines, calex- arene and ionic liquids. The purpose of the work is to carry out the reaction of O-chloracetylphenole with oxalate acid and to determine the physico-chemical and spectral properties of the reaction products.

2- Izopropil-5-metilfenol ko‘plab tabiiy birikmalarning asosini tashkil qiladi. Tarkibida aromatik halqa tutgan, siklik fenol terpenoidlari o‘simliklardan ajratib olingan. Ularning hosilalari yuqori biologik xossalari tufayli katta ahamiyatga ega. Shuning uchun timolni reaksion qobiliyatini o‘rganish, ularning yo‘nalishi qonuniyatlarini umumiy va farqlanuvchi tomonlarini aniqlash, yangi sintez qilingan moddalarni xromatografiya usulida tahlil qilish va ular orasida biologik faol birikmalarni izlash dolzarb masala hisoblanadi.

2- Izopropil-5-metilfenolni katalizatorsiz organik erituvchi muhitida xloratsetillanganda reaksiya regioselektiv borib, tegishli murakkab efirlar hosil bo‘lishi ko‘rsatib berildi. Masalan, timolni xloratsetillash reaksiyasi xloroform muhitida olib borilganda faqat O-xloratsetillash reaksiyasi borib, xloratsetiltimol 95% unum bilan hosil bo‘ladi:

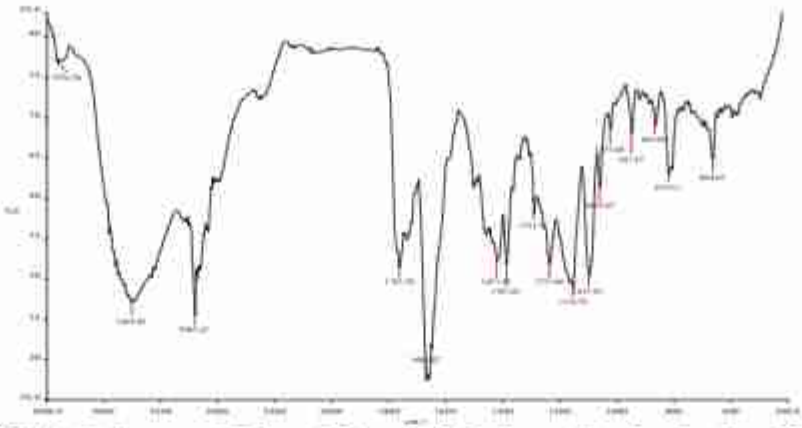


O-xloratsetiltimol bilan oksalat kislotaning dinatriyli tuzini dimetilformamid ishtirokidagi reaksiya tenglamasiga bog‘liq holda reaksiya sxemasini quyidagicha taklif qilish mumkin:



sxemani boshqa karbon kislotalarning reaksiyalarga ham qo‘llash mumkin [1-4].

Reaktsiya mahsulotlarining yupqa qatlam xromatografiyasi Silufol - 254 plastinkasida o'tkazildi. Sintez qilingan birikmalarning IQ - spektrlari Carl-Siess firmasining Specord belgili uskunasida (diapazoni 400-4000 sm^{-1}, o‘lchamlari 4 sm^{-1}) olindi. Sintez qilingan birikmalarning namunalari ^{1}H- va ^{13}C-YaMR- spektrlari UNITY 400 plus (Varian) uskunasida o‘rganildi. Spektrlarning talqini spektrlarni avtomatik ravishda o‘lchashni amalga oshiradigan, spektrlarni va ularning parchalarini grafik tarzda namoyish etish vositalariga ega bo‘lgan va foydalanuvchi spektrlari bilan ishlashni ta’minlaydigan asosiy dasturiy ta’minot yordamida amalga oshirildi.



1-rasm. Bis(2-(2-izopropil-5-metilfenoksi)-2-oksoetil) oksalatning IQ spektri

Timolni xloratsetillash reaksiyasini sistematik tarzda o'rganish uchun, reaksiya turli organik erituvchilar yordamida olib borildi. Bu reaksiyada erituvchining tabiatini, miqdorini, harorat, reagentlar nisbatlarining reaksiya unumiga va mahsulot tarkibiga ta'siri o'rganildi [5-8]. Timolni xloratsetillash mahsuloti va xloratsetil mahsulot asosida sintez qilingan moddalarning IQ- va YaMR- spektrlari ularning tuzilishini tasdiqlaydi. Tahlillardan shuni xulosa qilish mumkinki, O-xloratsetiltimolning natriy oksalat bilan dimetilformamid erituvchida olib borilganda bis(2-(2-izopropil-5-metilfenoksi)-2-oksoetil) oksalatni yuqori unum bilan olish mumkin. Olingan birikmalarning kimyoviy tarkibi va taklif qilingan tuzilishi IQ spektroskopiyada karbonil guruhining intensiv valent tebranishining namoyon bo'lishi va 3000-3600 sm^{-1} sohada oberton tebranishning kuzatilishi, shuningdek YaMR- spektroskopiya usulida metilen hamda aromatik halqa protonlarining kimyoviy siljishlarini taqqoslash natijasida aniqlandi.

Adabiyotlar:

1. Smith M.B., March J. Advanced Organic Chemistry: Reactions, Mechanisms and Structure. New-York, Wiley, 2013. 1200 p.
2. Choriyev A.U., Abdushukurov A.K., Jurayev R.S., Siddikova K.T., Inokov J.S. 1,4-fenilendi(karboksimetilensitrat) sintezi [Synthesis of 1,4-phenylandi (carboxymethylene citrate)]. Fan va texnologiya taraqqiyoti, 2022, no. 3, pp. 81-86.
3. Sadikova S.B., Abdushukurov A.K., Choriyev A.U. Chloroacetylation of hydroquinone and its Esters with Lewis acids. Universum: chemistry and biology, 2019, vol. 59, no. 5, pp. 52-56.
4. Sadikova S.B., Abdushukurov A.K., Shoriev A.U. Improving the method of synthesis of chloroacetylpyrocatechol. Journal of actual problems of modern science, education and training, 2020, pp. 137-142.
5. Choriev A., Jurayev R., Ergasheva R., Abdushukurov A. Reaction of the trichloracetylpirogallole with monosodium oxycarbon acids. Slovak international scientific journal, 2020, vol. 1, no. 40, pp. 12-16.
6. Choriev A.U., Abdushukurov A.K. Solvent-free, microwave-assisted, acidic Al_2O_3-$MoCl_5$ catalyzed synthesis of aromatic hydroxyketones via Fries rearrangement of aromatic esters. Acta NUUz, 2015, no. 3, pp. 172-175.
7. Schalley, C.A. Thematic series on supramolecular chemistry. Beilstein J. Org. Chem., 2009, vol. 76, no. 5, pp. 1-9. DOI: 10.3762/bjoc. 5.76
8. Li J.J. Name Reactions. A Collection of Detailed Mechanisms and Synthetic Applications. Berlin-Heidelberg, 2009. 704 p.