O‘ZBEKISTON RESPUBLIKASI OLIY TA’LIM, FAN VA INNOVATSIYALAR VAZIRLIGI

URGANCH DAVLAT UNIVERSITETI

«KIMYONING DOLZARB MUAMMOLARI» MAVZUSIDAGI RESPUBLIKA ILMIY-AMALIY ANJUMAN MATERIALLARI

(2024-yil 21-22-iyun)

URGANCH – 2024

Mazkur Respublika ilmiy-amaliy anjuman O‘zbekiston Respublikasi Oliy ta’lim, fan va innovatsiyalar vazirligining 2024-yil 18-yanvardagi “O‘zbekiston Respublikasi Prezidentining 2023-yil 4-iyuldagi PQ-200-son qarori ijrosini ta’minlash to‘g‘risida”gi 16-son buyrug‘iga asosan Urganch davlat universiteti rektorining 2024-yil 26-apreldagi 59-sonli buyrug‘i bilan “Kimyoning dolzarb muammolari” mavzusida 2024-yil 21-22-iyun kunlari o‘tkazildi.

Ushbu to‘plamga 2024-yil 21-22-iyun kunlari Urganch davlat universitetida — “Kimyoning dolzarb muammolari” mavzusidagi Respublika ilmiy-amaliy konferensiya materiallari to‘plamiga bakalavr va magistrantlar, ilmiy tadqiqot ishlarini olib borayotgan izlanuvchi va tadqiqotchilar, katta ilmiy xodim-izlanuvchilar, ilmiy-tadqiqot institutlari olimlari va oliy o‘quv yurtlari professor-o‘qituvchilarining ilmiy ishlari kiritilgan.

Mazkur to‘plamga kiritilgan materiallarning mazmuni, undagi statistik ma’lumotlar va me’yoriy hujjatlar sanasining to‘g‘riligiga hamda tanqidiy fikr mulohazalarga mualliflarning o‘zlari mas’uldir.

Mazkur to‘plam unversitet uslubiy Kengashining 2024-yil __ -iyundagi 5-sonli yig‘ilish qarori bilan nashrga tavsiya etilgan.

qaraganda 60% samaraliroqdir.), shu bilan birga atrof-muhitni muhofaza qilishga yordam beradi. Bir uy uchun yetarli miqdorda poliuretan izolyatsiyasini ishlab chiqarish uchun sarflangan energiya miqdori, izolyatsiya tufayli atigi bir yil ichida tejaladi. Kelajakda ishlab chiqarish jarayonlarini yanada yaxshilash, buning natijasida arzonroq va hatto ekologik toza poliuretanlar olish muhim ahamiyatga ega [3].

Yuqoridagi holatlarni e'tiborga olgan holda ishning dastlabki qismida: mahalliy xomashyo asosida uretan guruhlarini o'z ichiga olgan oligomerlar olish; izosiyanat bo'lmagan usulda oliguretanlar ishlab chiqarish texnologiyasi ishlab chiqish; yangi epoksiuretan polimerlari olish; epoksiuretan polimerlarining tuzilishi va fizik-kimyoviy xossalari aniqlash; epoksiuretan polimerlari asosida polimer kompozit materiallar olish; epoksiuretan polimerlari va ular asosidagi polimer kompozit materiallarning korroziyaga qarshi, tribotexnik va deformatsiyaga chidamlilik xossalari aniqlash maqsad qilib olindi.

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SYNTHESIS AND BIOLOGICAL ACTIVITY OF N-(2-METHYL-4-OXO-3,4-DIHYDROQUINAZOLIN-6-YL)PROPIONAMIDE

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Quinazolin-4-ones are one of the most important heterocyclic compounds due to their potential pharmaceutical and biological activities. Quinazolin-4-one derivatives have analgesic, anti-inflammatory, anticancer and antimicrobial activity in medicine. In addition, fungicides, herbicides, and biostimulants are widely used in agriculture to protect plants from various diseases in order to obtain high-yield and high-quality food products. Derivatives of heterocyclic quinazolin-4-one compounds are valuable intermediates in organic synthesis. Therefore, it is important to synthesize derivatives of this important compound and study their physicochemical and biological activity [1-3].

For the synthesis of N-(2-methyl-4-oxo-3,4-dihydroquinazolin-6-yl)propionamide, which is considered the object of research, 2-methyl-6-amino-3(H)-quinazolin-4-one, in the presence of propionic acid acylation reaction 1.61 g of 2-methyl-6-amino-3(H)-quinazolin-4-one and 3.5 ml of propionic acid were placed in a 50 ml round-bottom flask and heated in an oil bath for 4 hours. The

reaction mixture was cooled to room temperature. The precipitate was filtered. Recrystallized from ethyl alcohol. Yield 0.128 g (79.5%). System – benzene:acetone 2:3. R_f=0.58. Molecular mass 231.4. The reaction equation of the synthesized compound was proposed as follows (Figure 1).

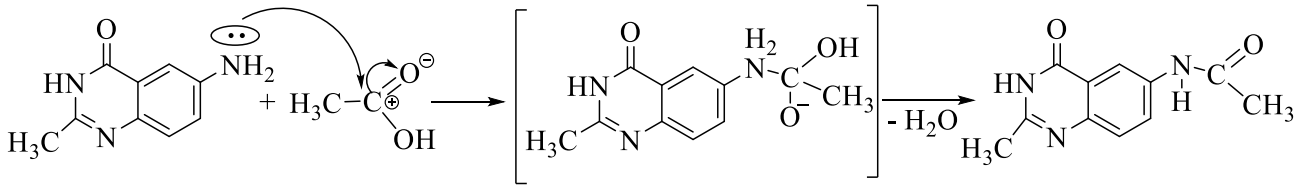

Figure 1. Synthesis of N-(2-methyl-4-oxo-3,4-dihydroquinazolin-6-yl)propionamide

Structure of synthesized N-(2-methyl-4-oxo-3,4-dihydroquinazolin-6-yl)propionamide NMR ^1H, ^{13}C - spectra were obtained on Unity-400+ equipment with operating frequency of 400 MHz, deuterylated CD_3COOD as solvent.

Analysis results of compound N-(2-methyl-4-oxo-3,4-dihydroquinazolin-6-yl)propionamide 1H NMR spectrum: (DMSO-*d6*): (δ, ppm. J/Hz): 2.33 (3H, t, J=4.86 CH_3), 12.29 (1H, s, NH), 8.41 (1H, t, J=2.3, H-5), 7.79 - 7.92 (2H, AA`VV` type, H - 7, 8), 10.11 (1H, s, NH), 2.36 (2H, k, J_1=6.44; J_2=6.67 CH_2CH_3), 1.15 (3H, t, J=6.54, CH_2CH_3). ^{13}C NMR (DMSO-*d6*): $–CH_3$ in the 2nd state has a strong 21.8 ppm. (1-C) and $–CH_3$ strong 9.8 (11-C), $–CH_2$ – 29.6 ppm. (12-C) areas, 154.1 ppm. (2-C), 4th state (C=O) 160.7 ppm. (3-C), 118.8 ppm. (4-C), 138.4 ppm. (5-C), 124.7 ppm. (6-C), 122.1 ppm. (7-C), 142.4 ppm. (8-C), 120.6 ppm. (9-C), 170.4 ppm. (10-C). IR spectrum (KBr, ν, cm^{-1}): (C=O) 1689 cm^{-1}, (N-H) 3282 cm^{-1}, (C=N) 1659 cm^{-1}, (CH_3) 3015-3030 cm^{-1}, (C-C) 1481 cm^{-1}, (C-N) 1301 cm^{-1}, (C-H) 3058 cm^{-1}, (CH_2) 1450 cm^{-1} appeared.

Biological activity. Growth-stimulating activity - primary tests for growth-stimulating activity were studied in laboratory conditions [4]. The test objects were wheat seeds of the Tatyana variety and cucumber seeds of the Orzu variety. The drug Uchkun was used as a standard. The drug Uchkun is of plant origin, based on polyprenol derivatives.

The purpose of our work was to study the growth-stimulating activity of N-(2-methyl-4-oxo-3,4-dihydroquinazolin-6-yl)propionamide and select its concentrations. For this purpose, wheat seeds were soaked in solutions of the test substances for 18 hours, cucumber seeds for 6 hours. The energy of seed germination was determined on day 2, and on day 5 - germination and the effect of stimulants on the length of the aerial and root parts of the seedlings.

Table 1

Growth-stimulating activity of N-(2-methyl-4-oxo-3,4-dihydroquinazolin-6-yl)propionamide

Name substances	Concentration %	Wheat sprouts, sm		Cucumber sprouts, sm	
		root length	stem height	root length	stem height
Control	no/e	7,75	6,05	5,18	5,38
Standard Uchkun	0,0001	9,93	7,85	6,93	5,88
N-(2-methyl-4-oxo-3,4-dihydroquinazolin-6-yl)propionamide (**1**)	0,1	2,93	3,84	2,24	1,05
1	0,01	3,77	5,08	3,37	1,12
1	0,001	5,92	4,34	3,89	1,43
1	0,0001	7,17	5,31	3,94	1,28
1	0,00001	8,11	5,62	4,92	1,83
1	0,000001	9,54	6,53	6,56	3,18
1	0,0000001	8,57	6,44	6,96	5,58

From laboratory studies conducted, a substance called N-(2-methyl-4-oxo-3,4-dihydroquinazolin-6-yl)propionamide showed growth-promoting activity at 0.00001 %, 0.000001 % and 0.0000001 % concentrations. As can be seen from table 1, the length of wheat roots at concentrations of 0.000001 % and 0.0000001 % exceeded the control variant by 11.2 % and 9.7 %, while in the standard the indicators were greater by 29.2 %. On cucumber seeds, the root length was greater by 28.3 % and 35.6 %, and the standard by 34.9 % relative to the control.

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ORGANIZMDA YOD YETISHMOVCHILIGI OQIBATLARI VA UNI DAVOLASH CHORA-TADBIRLARI

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Mineral moddalarning tirik organizm faoliyatida fiziologik ahamiyati beqiyosdir [1]. Ular oqsillar, skelet suyaklari, fermentlar, gormonlar tarkibiga kiradi. Organizmdagi mineral moddalarning umumiy miqdori, tana og‘irligining 4,5% ini tashkil etadi, ularning 60% ti suyaklar tarkibida bo‘ladi. Mineral moddalar organizmdagi barcha funksiyalarni mo‘tadil bajaralishini ta’minlaydi. Mineral moddalarning ionlari to‘qima va qonning osmotik bosimini, ishqor-kislota muvozanatini va faol reaksiyasining doimiyligini ta’minlaydi. Ular asab tizimi faoliyati, qon ivishi, so‘rilish, gazlar almashinuvi, sekretsiya va ayiruv jarayonlari uchun juda zarurdir.

Ana shunday zaruriy mineral moddalardan biri yod hisoblanadi. Bu elementning yetishmasligi qalqonsimon bez faoliyatining va umuman moddalar almashinuvining buzilishiga, odam organizmining jismonan va aqlan zaiflashishiga olib keladi [2,3]. Organizmdagi yod yetishmovchiligining sabablari: ovqatlanish muvozanatining buzilishi, atrof-muhitning ifloslanishi, radiatsion fonning yuqori bo‘lishi, tananing allergik reaksiyalarga moyiligi va boshqalardir. Aynan qalqonsimon bez gormonlari insonning yuksak intellektual qobiliyatini ta’minlaydi. Agarda