

KARBOMER ASOSIDAGI GIDROGEL VA ORGANOGEL MATRITSALARDAN DIKLOFENAK NATRIYNING DIFFUZIYALANISH KINETIKASINI O'RGANISH

Eshmatov Abror Mamayusupovich

Chirchiq davlat pedagogika universiteti, Toshkent viloyati, O'zbekiston Respublikasi
+998 88 489 73 37 abeshmatov90@gmail.com

Inagamov Sabitjan Yakubjanovich

Toshkent farmatsevtika instituti, Toshkent shahri, O'zbekiston Respublikasi +998 94
662 96 07

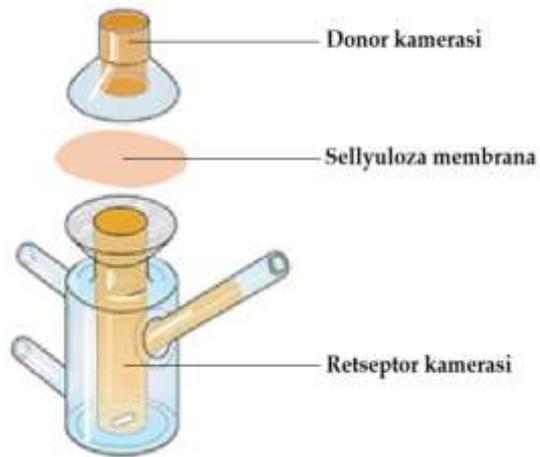
Tadqiqotning dolzarbligi: Zamonaviy farmatsevtikada mahalliy dori shakllariga talab ortib bormoqda, chunki ular to'g'ridan-to'g'ri zararlangan joyga ta'sir ko'rsatadi va tizimli nojo'ya ta'sirlarni kamaytiradi. Karbopol va Natriy karboksimetilsellyuloza (Na-KMS) asosidagi gidrogel va organogellar o'zining bio-mosligi, zararli toksik ta'sirlarga ega bo'lmaganligi hamda bo'kish va qovushqoqlik xossalari bilan alohida ahamiyatga ega.

Tadqiqotning maqsadi: Karbopol asosidagi gel matritsali surtma dorilarda tarkibga Na-KMS kiritish orqali karbopol miqdorini kamaytirib samarali diffuzion va fizik-kimyoviy xususiyatlarga ega matritsa olish.

Karbopol asosidagi gel matritsali surtma dorilarda tarkibga Na-KMS kiritish orqali karbopol miqdorini kamaytirib samarali diffuzion va fizik-kimyoviy xususiyatlarga ega matritsa olish. Gidrogellar uch o'lchovli tuzilmalar bo'lib, strukturaviy mustahkamlikni yo'qotmasdan yuqori miqdorda suvni singdirish va ushlab turish qobiliyatiga ega [1]. Gidrogellar tabiatan juda barqaror; buning natijasida gidrogellar tomonidan so'rilgan eritmalar har qanday tashqi kuch mavjud bo'lganda ham uning tarmog'ida qoladi [2]. Polimer zanjirida $-OH$, $-HSO_3$, $-COOH$, $-NH_2$ va boshqalar kabi ko'p miqdordagi gidrofil guruhlar mavjudligi sababli gidrogellar tomonidan suvning katta miqdori kuzatiladi [3,4]. Karbopol polimeri ham xuddi shunday polimerlar guruhiga kiradi. Makromolekula NaOH ning suvdagi eritmasi orqali neytrallanganda undagi polimer zanjirlar maksimal uzoqlashadi (shishadi). Muhammad Suhail, Pao-Chu Wu va Muhammad Usman Minhas tomonidan o'tkazilgan tadqiqot ishida **xuddi shunday, kislotali (pH 1,2) va asosiy (pH 7,4) muhitda karbomer asosidagi gidrogel formulalari uchun in vitro tadqiqoti o'tkazilgan va pH 7,4 da preparatning ko'proq chiqishi kuzatilgan.** Dorilarning gidrogellardan ajralib chiqish tartibini bilish uchun **nol tartibli, birinchi tartibli, Higuchi modeli** va **Korsmeyer-Peppas modeli** orqali matematik modellashtirilgan. [5]

Usul va uslublar: Biz ilmiy tadqiqot ishimizda karbopol, sellulyozaning ba'zi xosilalari va ular asosidagi aralashmalar asosidagi gidrogel va organogel polimer matritsalaridan dori moddalari zarrachalarining diffuziyalanish kinetikasini Franz diffuziya hujayrasi usuli yordamida o'rganmoqdamiz. Ushbu usulda kvartslar idishning donor kamerasiga tarkibiga diklofenak natriy zarrachalari kiritilgan gidrogel yoki organogel namunasi qo'yiladi. Retseptor kamerasi fosfat buffer eritmasi (**pH=6,86**) bo'lgan muhit bilan to'ldiriladi. Sababi

diklofenak natriy neytral muhitlarda barqarordir. Donor kamerasidagi namuna tarkibidan sellyuloza membranasi orqali diffuziyalangan (vertical diffuziya) diklofenak natriyning konsentratsiyasini aniqlash uchun spektrofotometrik usul qo'llanildi. (1-rasm)

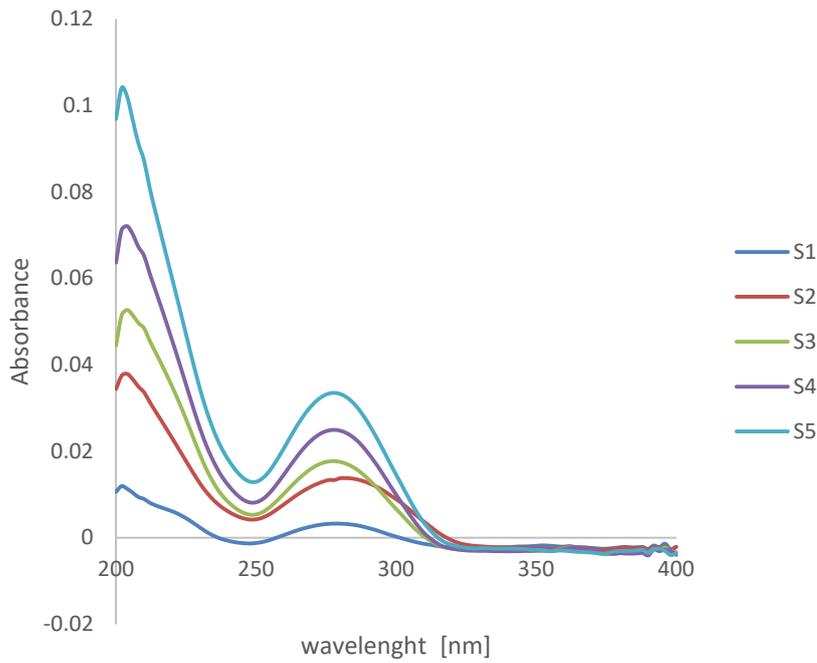


1-rasm: Franz diffuziya hujayrasi usuli

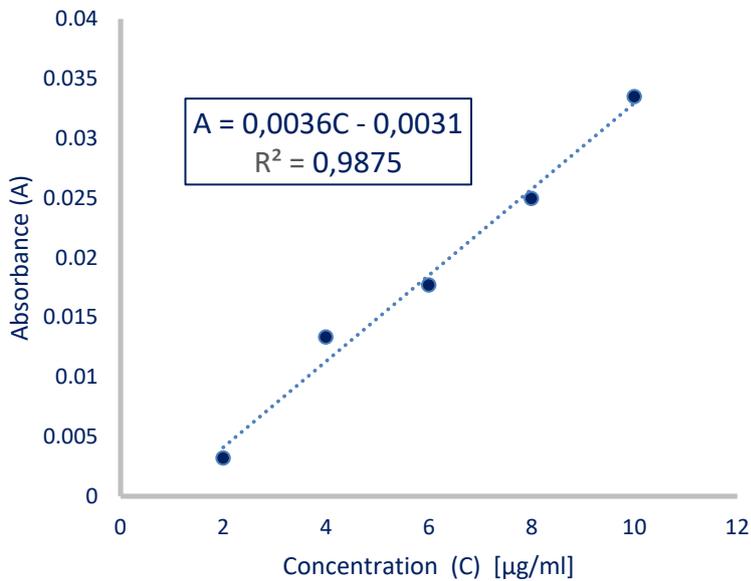
Natijalar: Buning uchun diklofenak natriyning fosfat buffer eritmasidagi standart eritmalari tayyorlandi. Standart eritmalar $2 \mu\text{g/ml}$, $4 \mu\text{g/ml}$, $6 \mu\text{g/ml}$, $8 \mu\text{g/ml}$, $10 \mu\text{g/ml}$, va $12 \mu\text{g/ml}$ konsentratsiyada olindi. Olingan standart eritmalarining uv-vis spektri va yutilish ko'rsatkichi (absorbance) ning konsentratsiyaga bog'liqligining chiziqli tenglamasi va grafigi olindi. (2-rasm)



2-rasm: Diklofenak natriyning fosfat buffer eritmasidagi standart eritmalari



(A)



(B)

2-rasm: Diklofenak natriyning fosfat buffer eritmasidagi standart eritmalarining ($2 \mu\text{g/ml}$, $4 \mu\text{g/ml}$, $6 \mu\text{g/ml}$, $8 \mu\text{g/ml}$, $10 \mu\text{g/ml}$) uv-vis spektri (A) va konsentratsiyaning yutilish ko'rsatkichi (absorbance) ga bog'liqligi.

Xulosa: Diklofenak natriyning fosfat buffer eritmasidagi konsentratsiyasini 0,5 soat, 1 soat, 1,5 soat, 2 soat, 2,5 soat va hokazo vaqt mobaynida aniqlab ajraliash kinetikasining vaqtga bog'liqligini o'rganish ustida ilmiy ishlar olib borilmoqda.

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