

XLORELLA BILAN YASHIL HAYOT YO‘LIDAN YURAMIZ

Chlorella vulgaris va uning qishga chidamli kenja turlari
hamda *Senedesmus oblicus*ni ko‘paytirib,
baliqchilikda ozuqa sifatida qo‘llash



Elbek Jalolov



XLORELLA SUVO‘TI SISTEMATIKASI

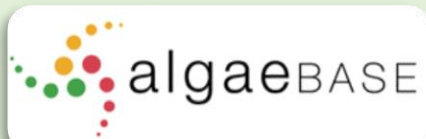
O‘simliklar dunyosi

Yashil suvo‘tlar bo‘limi

Xlorelladoshlar oilasi

Xlorella turkumi

Chlorella vulgaris
(Vulgaris xlorellasi)



56 turkumga mansub 223 tur

31 tur mavjud

Tasdiqlangan
shtammlar
soni 46 ta

KENJA TURLAR

1. *Chlorella vulgaris* f. *globosa* V.M. Andreyeva
2. *Chlorella vulgaris* f. *minuscule* V.M. Andreyeva
3. *Chlorella vulgaris* f. *suboblunga* V.M. Andreeva
4. *Chlorella vulgaris* var. *autotrophica* (Shihira & Krauss) Fott & Novakova
5. *Chlorella vulgaris* var. *tertia* Fott & Novakova
6. *Chlorella vulgaris* var. *ultrasquamata* Clemençon & Fott



Chlorella vulgaris ni Beijerinck degan olim 1890-yili kashf qilgan



Chlorella vulgarisning tarkibi

Uglevod tolalari-25-30%

Antioksidlovchilar

xlorofill, β-karotin, lyutein, fitonsid, fitoalleksin, xlorellin

Yog'lar (lipid-10%)

*To'yinmagan yog' kislotalari:
Omega-3, Omega-6*

Minerallar

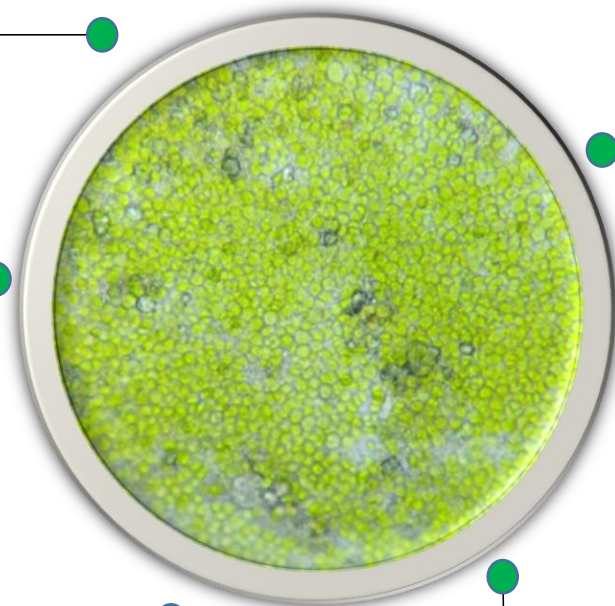
*(makro va mikro elementlar)
C, O, N, H, Cl, Na, S, Cu, Cr, Fe, Ca,
Mg, K, Zn, Se, P, I, Mn, Co, F, Br*

Vitaminlar

*A-retinol, C-askarbin kislota, E-tokoferol,
K-filloxinon, B₁₂-folat kislota, B₆-pidoksin,
B₂-ribofilavin, B₃-niatsin, Biotin-B₇,
Foli kislota-B₉, D-kalsiferol, PP-nikotinamid,
B₁-tiamin, B₅-pantotenat kislota*

Oqsil 60%

*Barcha aminokislotalar: Essensial-8, Lizin, Metionin,
β arginin, 8 ta almashinmaydigan aminokislotalar,
Linoleik kislota C18:3, Stearik kislota C18:4,
Arakidon kislota C20:4*



Chlorella
Excel
Group | **CHEG**
+998990915115

DUNYO MIQYOSIDA AMALGA OSHIRILAYOTGAN ISHLAR

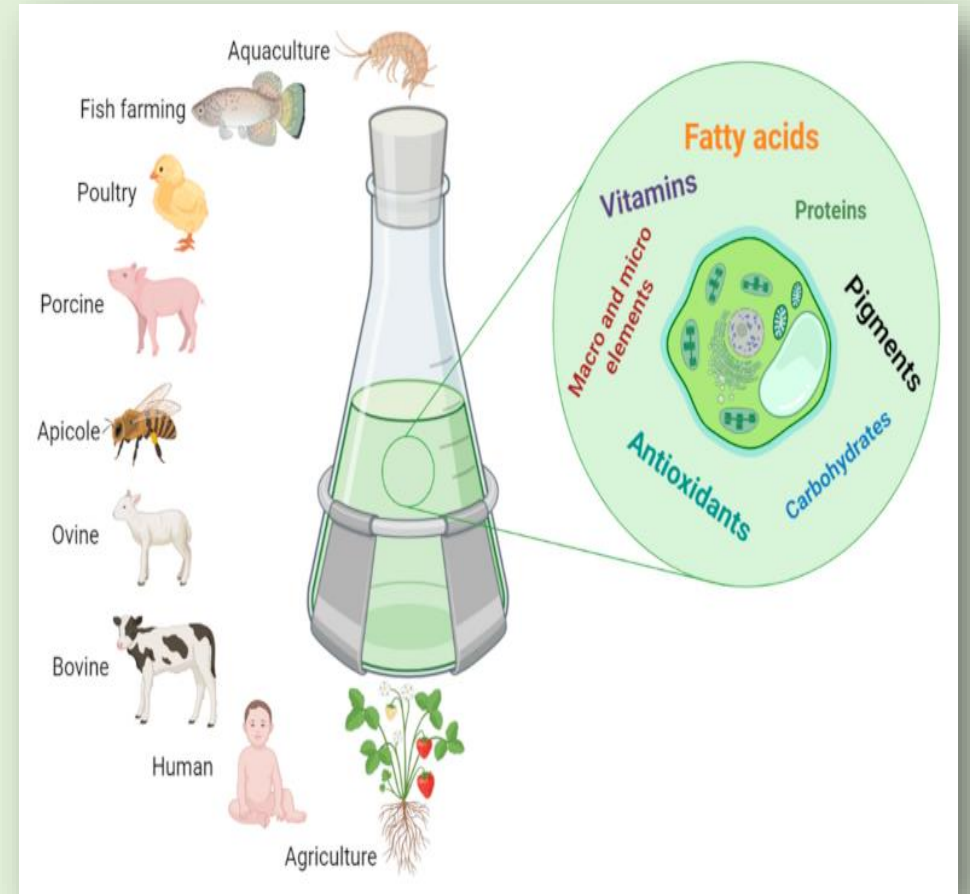
OZIQ-OVQAT



TIBBIYOT

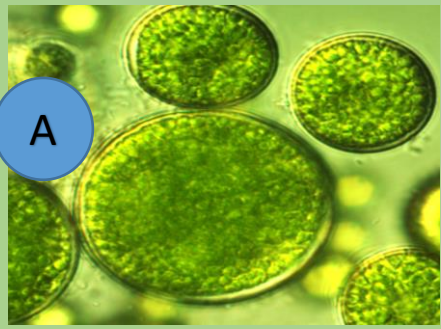


QISHLOQ XO'JALIGI

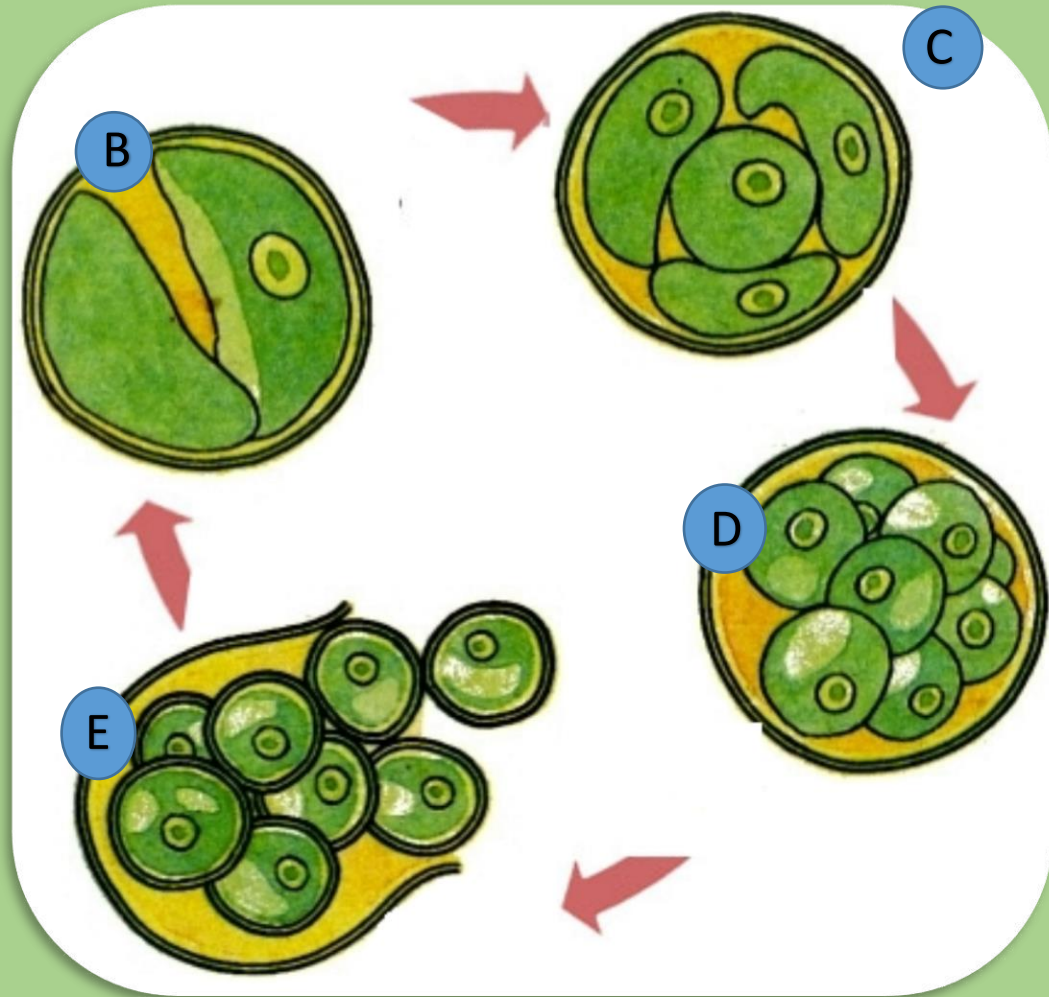


Chlorella vulgaris ni bo'linish bosqichlari

Bo'linish turi
SHIZAGONIYA
(Bir necha bo'laklarga
bo'linib ko'payish)

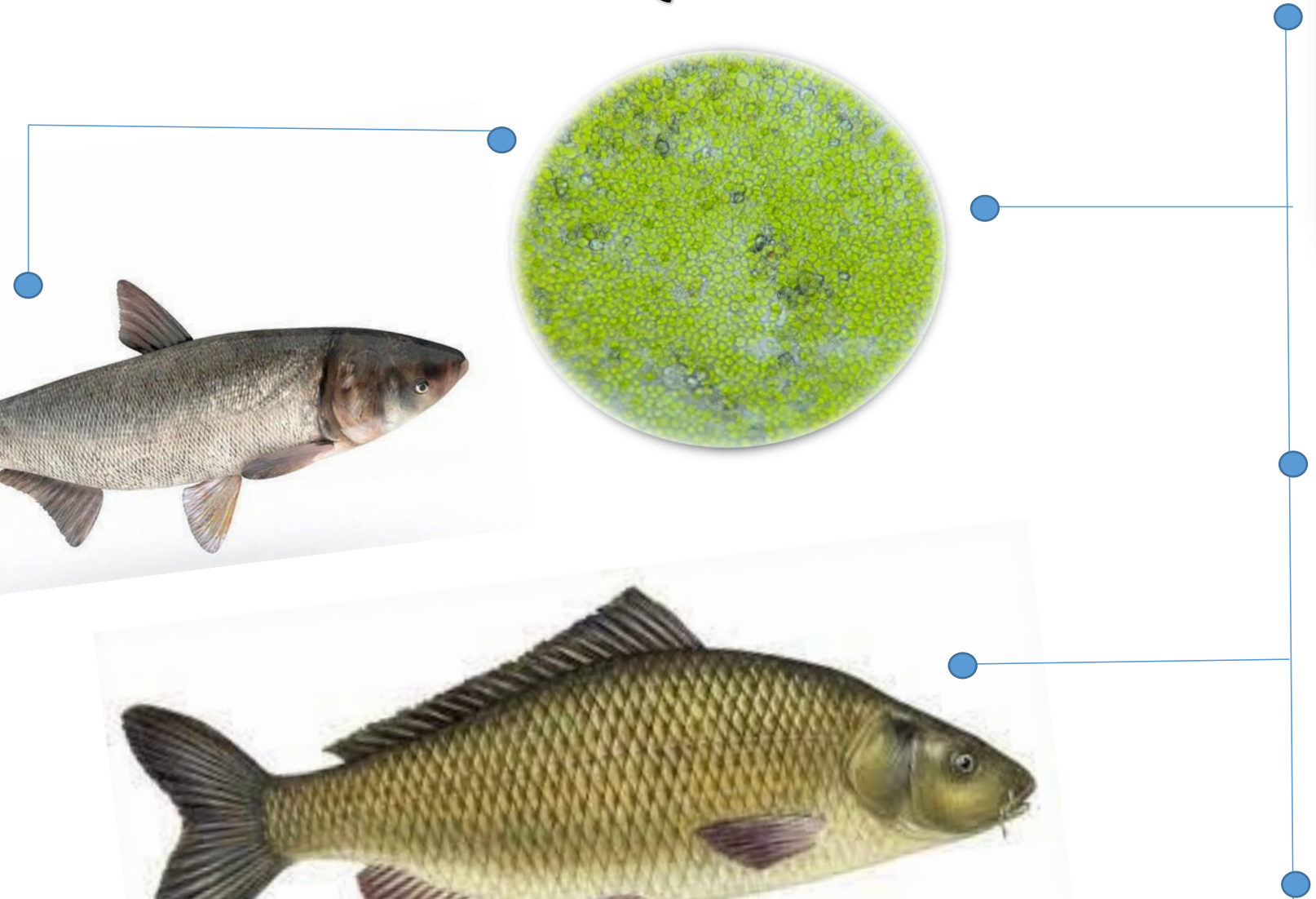
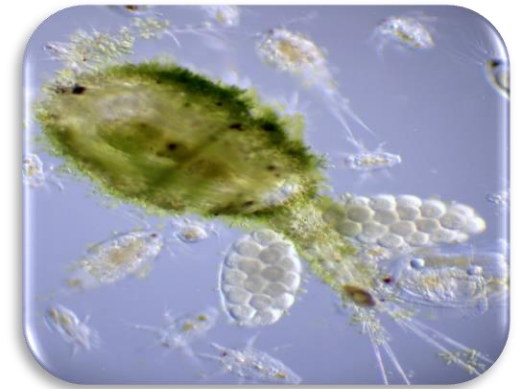
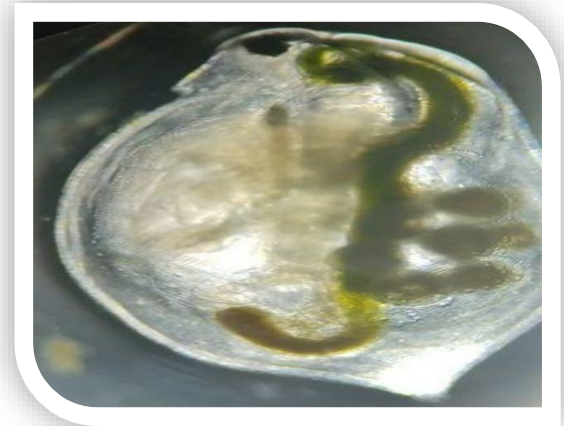
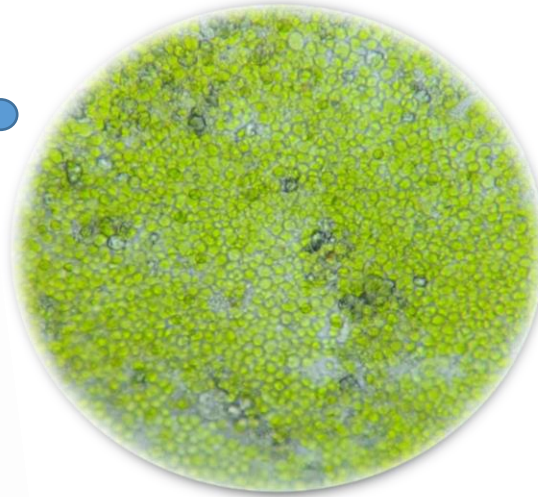


- A) *Bo'linishga tayyor yetilgan hujayralar*
- B) *Hujayra ichki, borliq qismini 2 ga bo'linishi*
- C) *Hujayra ichki, borliq qismini 4 ga bo'linishi*
- D) *Hujayra ichki, borliq qismini 8 ga bo'linishi va qobiqqa o'ralib hujayraga aylanishi*
- E) *Ona hujayra qobig'i yorilib, yosh hujayralarning chiqib ketishi*



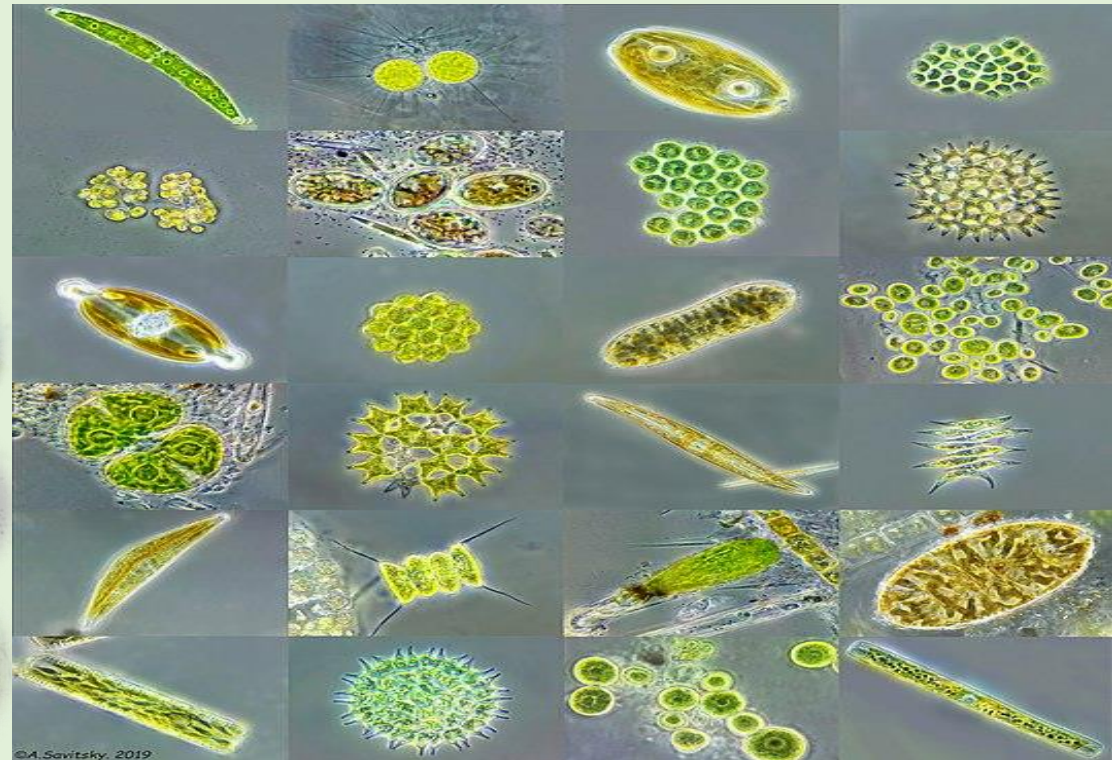
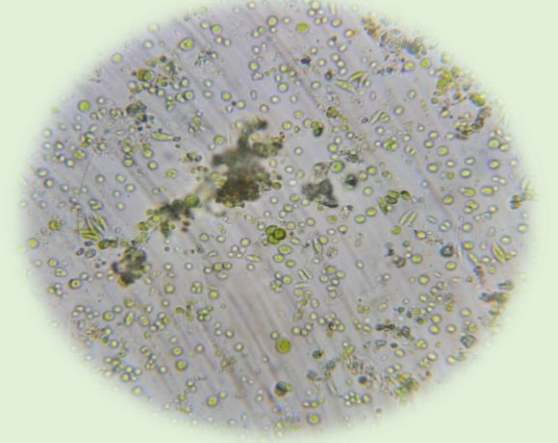
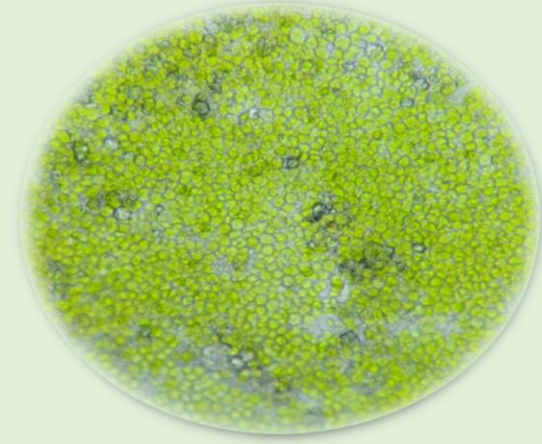
Chlorella
Excel
Group | **CHEG**
+998990915115

OZUQA ZANJIRI



SUVNING GIDROBIOLOGIK TAHLILI

1. Forel Ule shikalasi
2. Sekki diski
3. Plankton organizmlarni yig'uvchi to'r (1mm=24.....76)
4. Filtr qog'oz
5. Mikroskop (Biolam)
6. Kamera Garyayev, Bogorov
7. Identifikatsiya



LABORATORIYA SHAROITIDA KO'PAYTIRISH

O'G'ITLAR

Ammoniy sulfat $(\text{NH}_4)\text{SO}_4$

Kalsiy digidrofosfat $\text{Ca}(\text{H}_2\text{PO}_4)_2 \cdot \text{H}_2\text{O}$

Kalsiy sulfat $\text{CaSO}_4 \cdot \text{H}_2\text{O}$

Magniy sulfat $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$

Natriy gidrokarbonat NaHCO_3

Kaliy xlarid KCl

Temir III xlarid FeCl_3

Tuproq ekstrakti

Borat kislota H_3BO_3

Marganes xlorid $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}$

Rux sulfat $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$

Ammoniy vanadat NH_4VO_3

Ammoniy molibdat $(\text{NH}_4)\text{MoO}_3$

Karbonat anhidrid CO_2



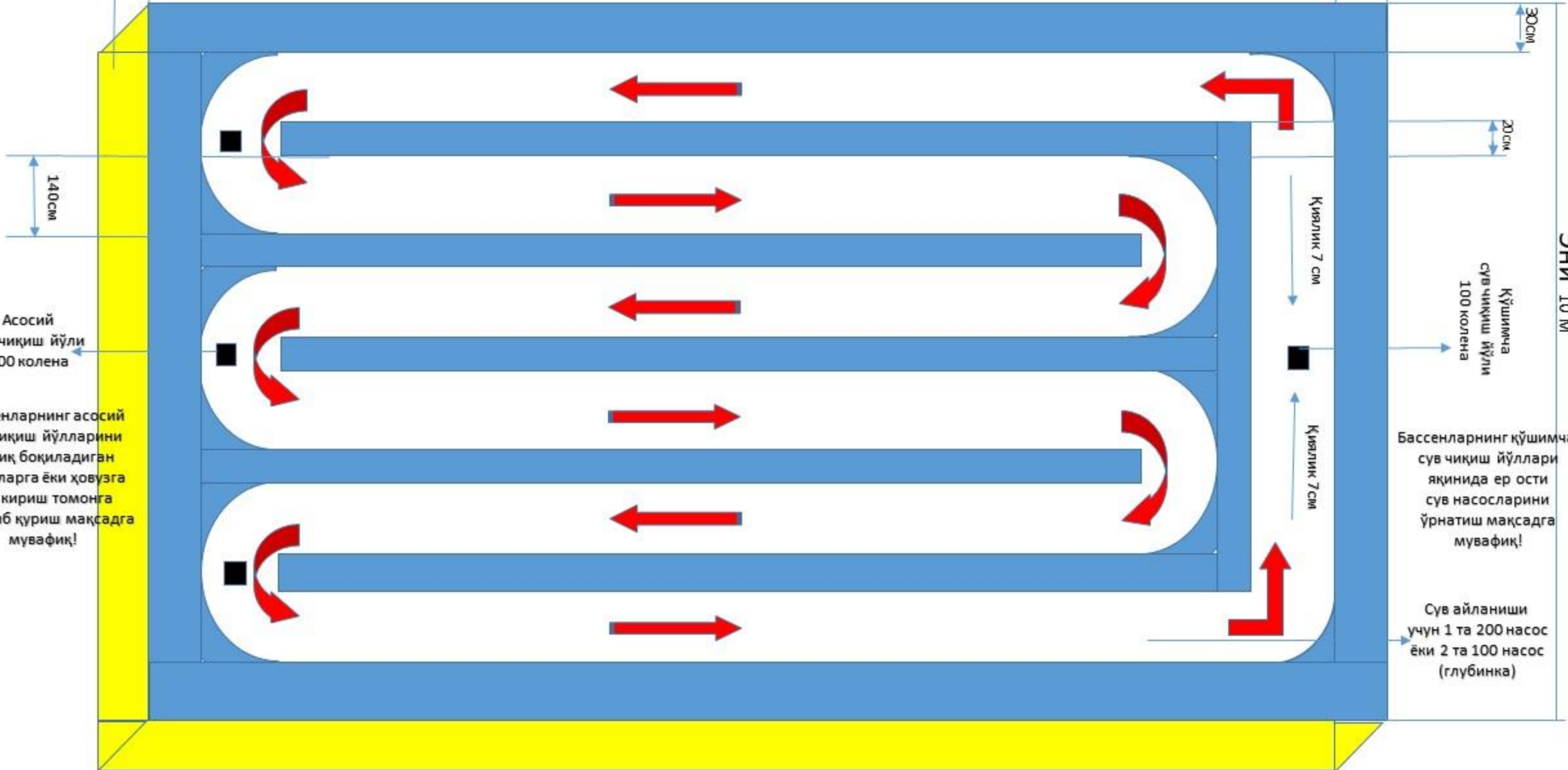
Хлорелла сув ўтини кўпайтириш ҳавзаси қурилмаси

Узунлиги 20 м

Бўйи 70см

Қиялик 7см

30см



140см

Асосий сув чиқиш йўли 100 колена

Бассенларнинг асосий сув чиқиш йўллари балиқ боқиладиган ҳовузларга ёки ҳовузга сув кириш томонга қаратиб қуриш мақсадга мувафиқ!

ЭНИ 10 м

Қўшимча сув чиқиш йўли 100 колена

Бассенларнинг қўшимча сув чиқиш йўллари яқинида ер ости сув насосларини ўрнатиш мақсадга мувафиқ!

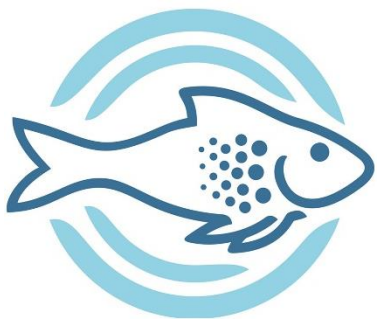
Сув айланиши учун 1 та 200 насос ёки 2 та 100 насос (глубинка)

Қиялик 7 см

Қиялик 7 см

30см

20см



O'G'ITLAR

Ammofos - azot-fosforli konsentrlangan eruvchan o'g'it.
(Ammoniy fosfat). Tarkibi 10-12% N va 52% P_2O_5 ni o'z ichiga oladi.
U asosan monoammoniyfosfat $NH_4H_2PO_4$ va qisman diammoniyfosfat $(NH_4)_2HPO_4$ dan iborat.

Selitra -(Ammoniy nitrat - faol modda).
Tarkibi (azot) 34-35%. Kimyoviy formulasi NH_4NO_3 .
Ammiakli selitrada azotning 50% ammiak shaklida (NH_4+) va
50% nitrat shaklida (NO_3^-) bo'lib,
barcha o'simliklar tomonidan yaxshi o'zlashtiriladi.



Machevina-karbamid. Tarkibi 46% azotni o'z ichiga olgan donador o'g'itdir.
Bu o'g'it o'simliklarga qo'llaniladigan eng konsentrlangan azotli o'g'itdir.
Modda hidsiz va suvda oson eriydi. Bundan tashqari, harorat ko'tarilgach,
eruvchanlik oshadi va donador holatidan kukun (pudra) holga keladi.
Machevina yoki karbamid kimyoviy birikma bo'lib, karbonat kislota amid $CO(NO_2)_2$.
Bu organik birikma, ammo uni mineral azotli o'g'it deb atash odatiy holdir.
Karbamid rangsiz, hidsiz kristallardir.



SELITRA **MACHEVINA**



