O’ZBEKISTON RESPUBLIKASIN
OLIY VA O’RTA MAXSUS TA’LIM VAZIRLIGI
TOSHKENT VILOYATI
CHIRCHIQ DAVLAT PEDAGOGIKA ISTITUTI
BIOLOGIYA KAFEDRASI

BOTANIKA FANI

Mavzu: GINETSEY

Fan o’qituvchisi: b.f.n. Fayziyev V.B.

Chirchiq-2019

Bu dunyoda komillikka intilmay, nuqsonlarni tuzatmay, ilm, hunar egallamay, el-yurtga, ma’rifatga xizmat qilmay o’tish hammomdan nopok - yuvinmay chiqmoqqa mengzaladi.

Buyuk alloma *Jaloliddin Rumiy*

DARS REJASI:

- Ginetseyning umumiy ta’rifi.
- Ginetseyning xillari
- Megasporognez va gametofitning rivojlanishi.
- Urug’kurtakning taraqqiy etishi va megasporognez.

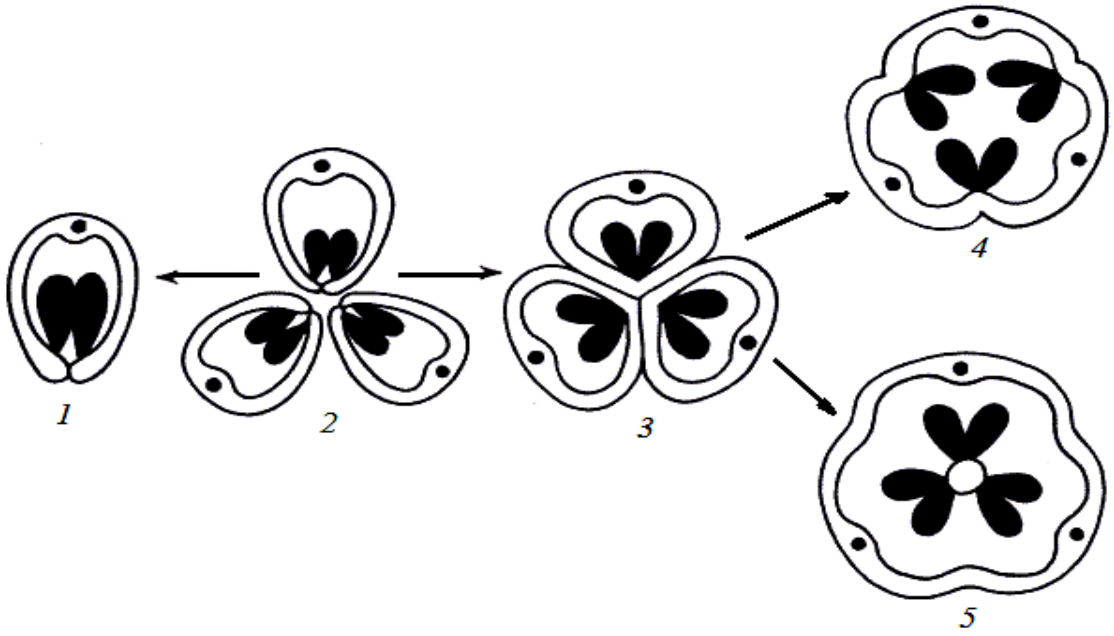
- ***Tayanch iboralar:*** ginetsey, stilodiy, tuguncha, changchi, urug’chi, tuguncha, megasporagnez, stilodiy, apokarp, sinokarp, plantseta, ortotrop, anatrop, gemitrop, kampilotrop.

GINETSEY:

- Guldagi bir yoki bir necha urug‘chibarglar (megasporofillar)ning yig‘indisi ***ginetsey*** (g i n e — ayol, urug‘chi) deyiladi.

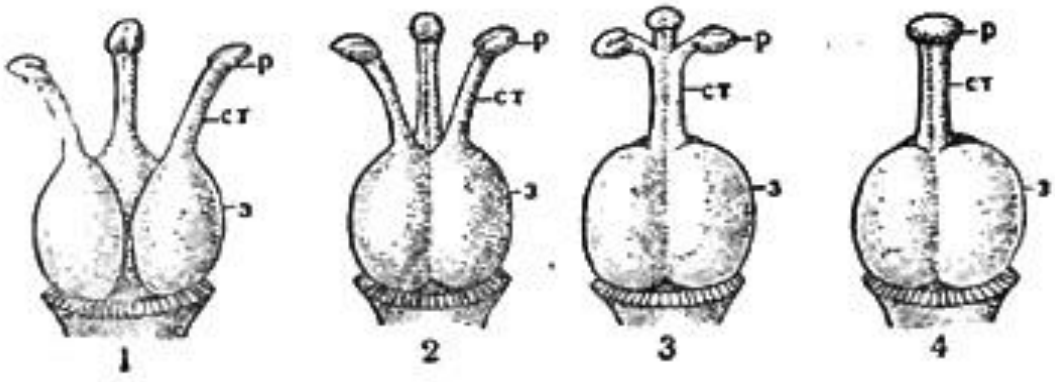
GNETSEYNING KELIB CHIQISHI:

- Urug‘chibarg kelib chiqishi jihatidan barg bilan bog‘liq. Lekin morfologik tuzilishi va faoliyati jihatidan vegetativ bargdan keskin farq qilib, ko‘proq ***megasporofill*** barglarga o‘xshaydi.



GNETSEYNING KELIB CHIQISHI:

- Klassik morfologiya asoschilaridan ***Gyote*** urug‘chi yoki ginetsey kelib chiqishi jihatidan shaklan o‘zgargan ***vegetativ barg*** deb ta’riflagan. Ammo, hozirgi ko‘pgina botanik morfolog-olimlar bu fikrni inkor etadilar.

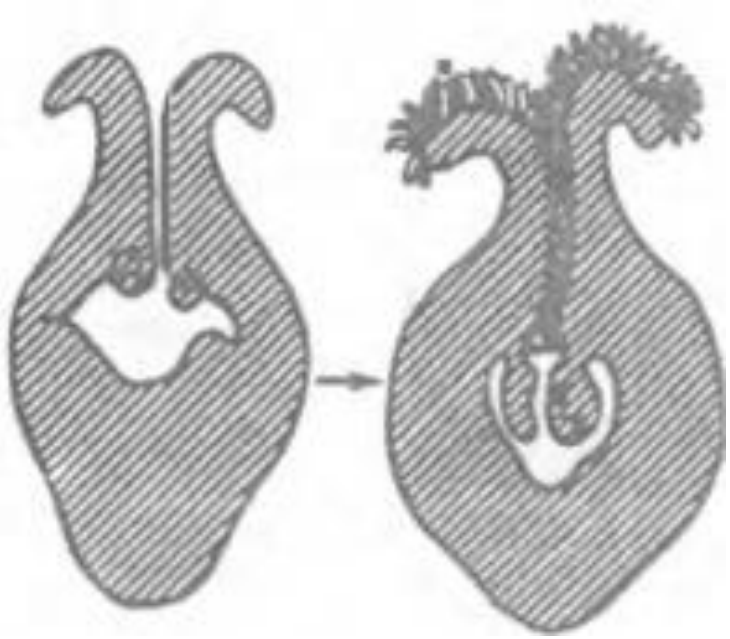


GNETSEYNING KELIB CHIQISHI:

Sagovnik

- Mashhur olim morfolog-sistematik ***A. L. Taxtadjyan*** va boshqa olimlar yopiqurug‘li o‘simliklarning gulidagi urug‘chibarglar evolyusiya jarayonida qadimgi ochiqurug‘li o‘simliklarning ajdodlari — ***sagovniklarda*** vujudga kelgan va ochiq patsimon ***megasporofillarni*** bir-biri bilan tutashishi natijasi — mevachibarglar rivoj topgan deydilar.

GNETSEYNING KELIB CHIQISHI:



Degeneriada urug‘chi barglarning taraqqin etish

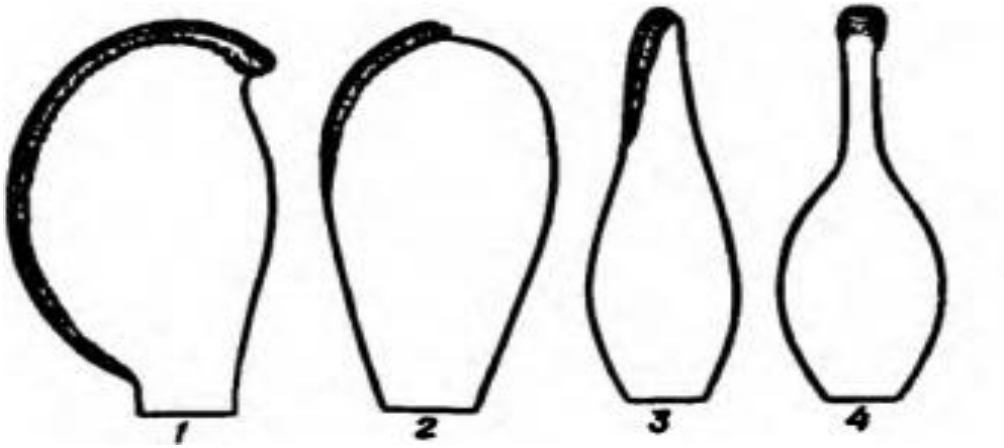
- Qazilma holda topilgan yopiqurug‘li o‘simlik ***Degeneriada*** xuddi shunday mevachi barglarning taraqqiy etganini ko‘rish mumkin

GNETSEYNING KELIB CHIQISHI:

- Rasmdan aniq ko‘rinadiki, ulardagi mevachibarglarning uchlari bir-biri bilan tutashmasdan, faqat bitta qisqa banddan tashkil topgan. Unda na ***stilodiy*** (yunon. s t i l o s — ustuncha) va na ***tumshuqcha*** bo‘lgan. Mevabarg ***platsenta (urug‘kurtak)*** gacha bezsimon tukchalar bilan qoplangan.

GNETSEYNING KELIB CHIQISHI:

- Mevachi barglarning keyingi evolyusiyasi (Degeneriadan to hozirgi yopiqurug‘li o‘simliklar)gacha taraqqiy etishi rasmda ko‘rsatilgan.

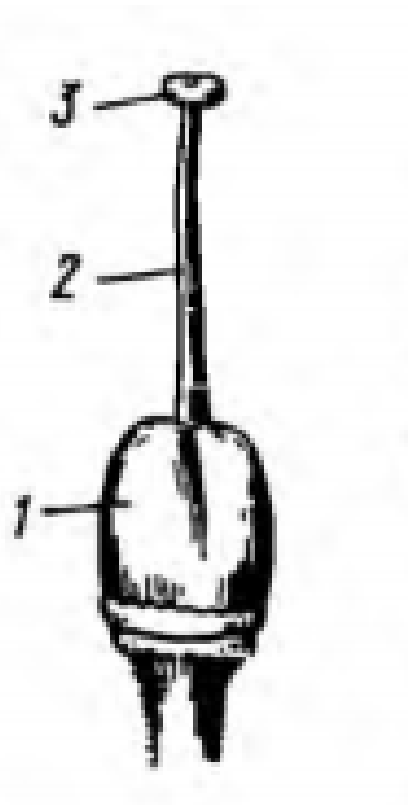


Degeneria da eng sodda Urug‘barglarning ko‘rinishi (1); 3—4 — ixtisoslashgan ustuncha (stilodiy) urug‘chilarning rivojlanish evolyusiyasi.

GINETSEYNING TUZILISHI:

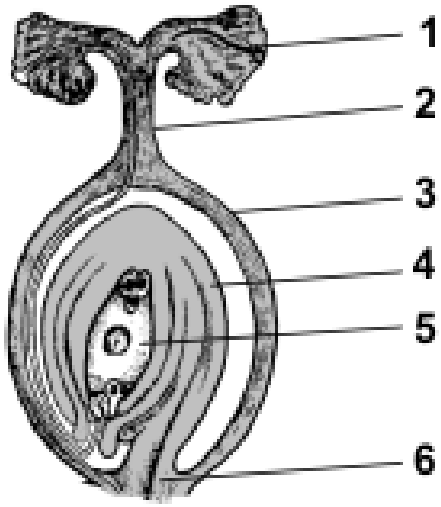
- Gulning muhim qismi bo’lgan ginetsey quyidagi qismlardan iborat: ***tumshuqcha, ustuncha*** va ***tuguncha.***

Ustuncha tumshuqchani tuguncha bilan birlashtiradi va tumshuqchani ozmi-ko‘pmi balandlikka ko‘tarib changlarni qabul qiladi hamda changlanishni osonlashtiradi.

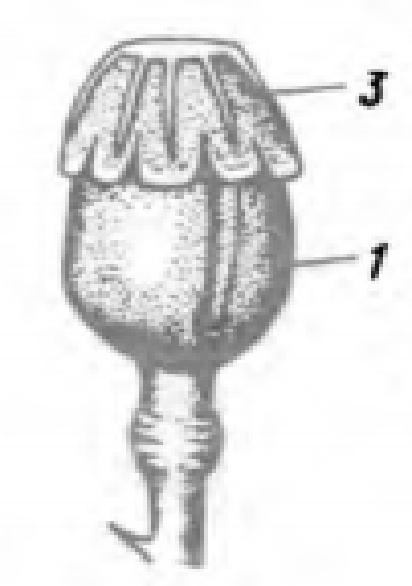


GINETSEYNING TUZILISHI:

- Tugunchaning ichida ***urug‘murtak*** joylashadi. Urug‘lanishdan keyin, bulardan ***urug‘*** hosil bo‘ladi. Shunday qilib, ***tuguncha urug‘murtaklari*** bilan birga ginetseyning eng muhim qismini tashkil etadi.



USTUNCHASIZ GINETSEY:



- Ustuchasiz tuguncha

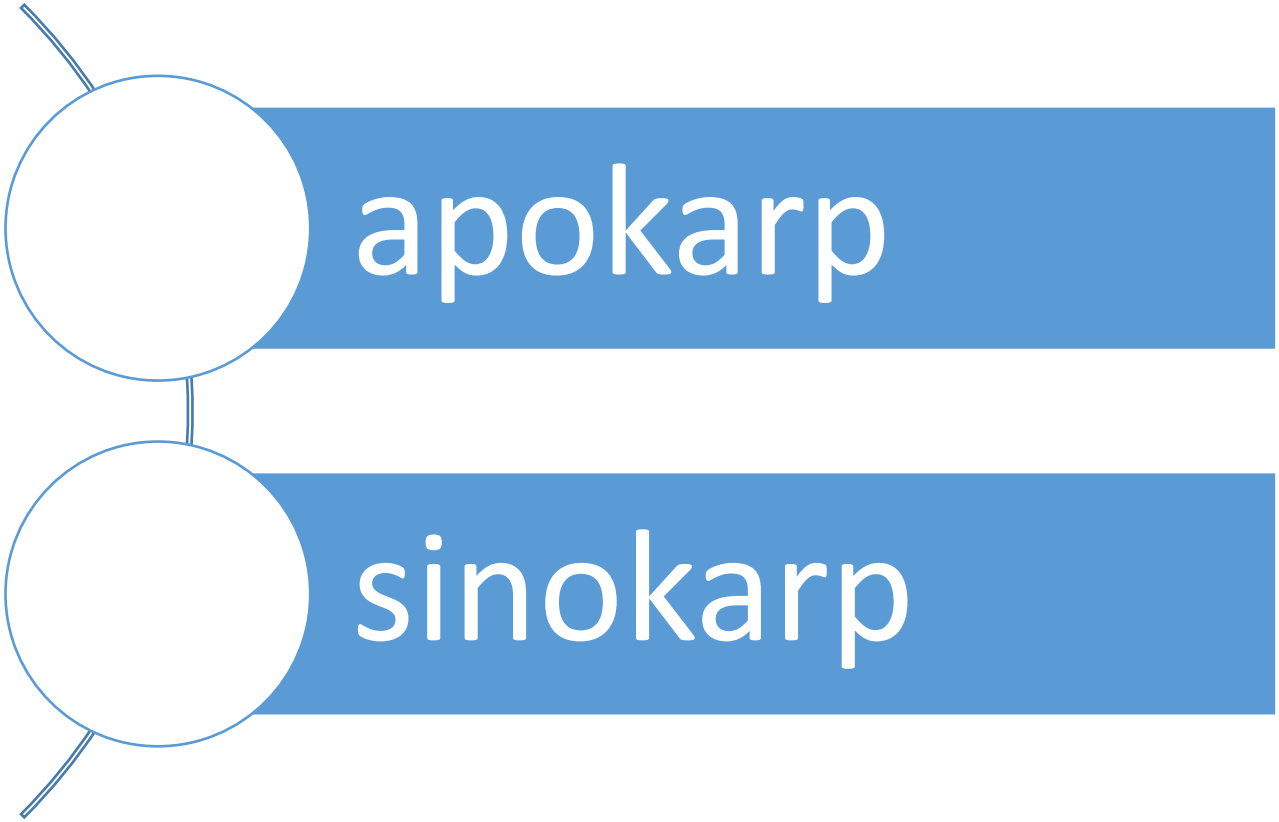
- Ko’pgina o’simliklar ginetsiyida ustuncha taraqqiy etmagan bo’lib, bunday tumshuqcga ***bandsiz tumshuqcha*** deyiladi va bunda tumshuqcha tuguncha ustida joylashgan bo’ladi. Masalan, ***ayiqtovondoshlar, magnoliyadoshlar, ko’knordoshlar***.
- Shamol yordamida changlanadigan o’simliklar (g’alladoshlar)da ham ***ustuncha taraqqiy*** etmagan.

USTUNCHANING XILLARI:

- Ba’zi o‘simliklarda (qulupnay, g‘ozpanja yoki beshbarg) gul tuguni baravar o‘smaganligi sababli ***ustuncha tugunchaning yonidan***, labguldoshlar, kampirchopondoshlarda esa ***tuguncha asosidan o‘sib chiqadi***.

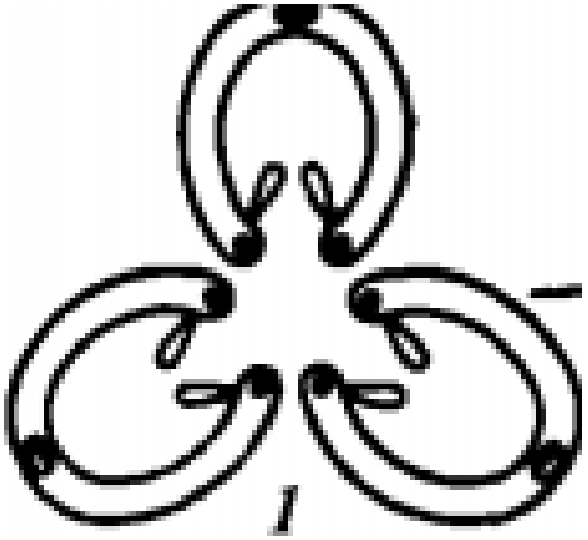
GINETSEY XILLARI:

- Ginetsiyning quyidagi xillari mavjud:



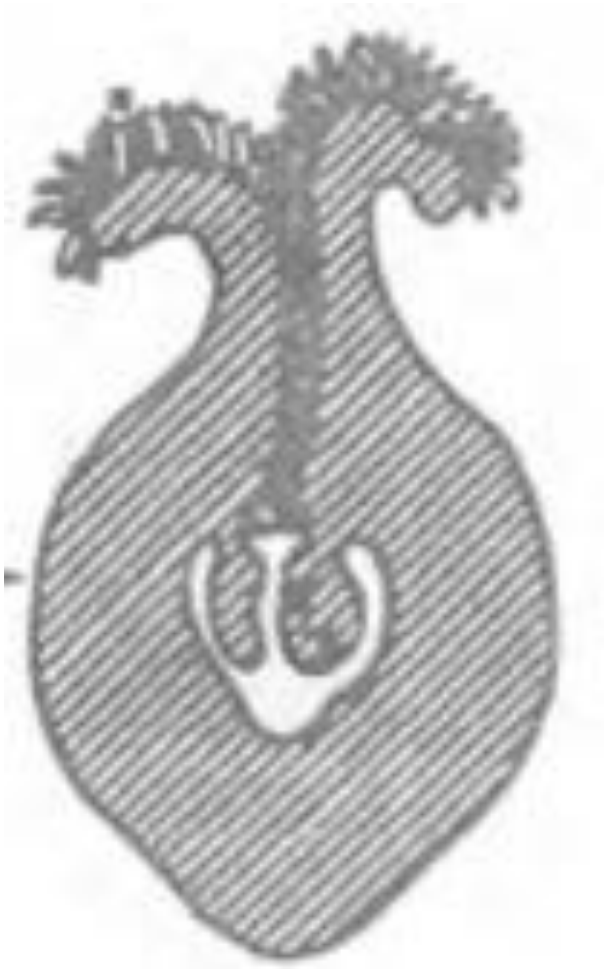
APOKARP GINETSIY:

- Bir gulning urug‘chi barglari (meva barglari) bir-biri bilan tutashmagan holda, har qaysisi alohida urug‘chiga aylansa, bunday urug‘chi ***apokarp ginetsey*** deb ataladi. Qazilma holda topilgan qadimgi yopiqurug‘li o‘simliklardan ***Degeneriada*** ham apokarp ginetsey bo‘lgan. Hozirgi o‘simliklardan apokarp ginetsey ***ayiqtovondoshlar, atirguldoshlar, zirkdoshlar*** kabi o‘simliklarda uchraydi.



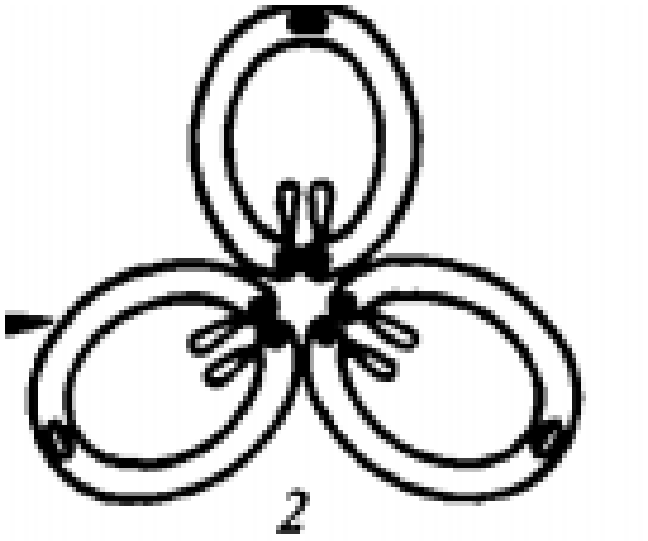
GINETSEY TARAQQIYOTI:

- Evolyusiya jarayonida eng sodda mevachi barglarning ixtisoslashuvidan uchlari qayrilib ***stilodiy*** (ustuncha) shakliga kirgan. Ayiqtovondoshlar oilasining vakillarida eng sodda mevachi barglar uchraydi. Ginetseyning evolyusiyasida ro‘y bergan eng muhim o‘zgarishlardan biri, bu ***senokarp*** ginetseyning va ***ostki tugunchaning*** rivojlanishidir.



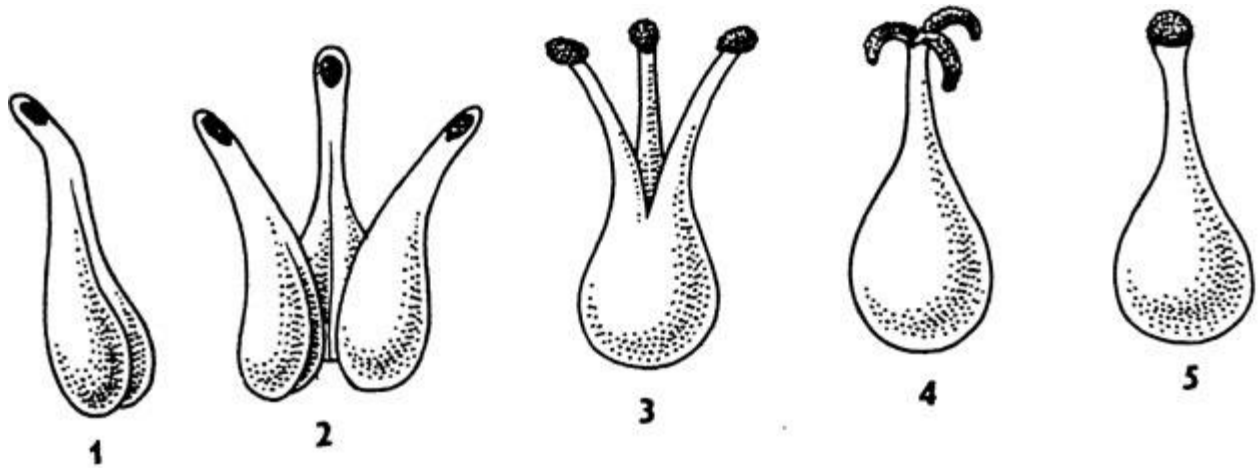
SENOKARP GINETSEY:

- Bir necha urug‘chi barglardan tashkil topgan ginetsey ***senokarp*** ginetsey deb ataladi. Senokarp ginetseyda mevabarglarning tutashib ketishi ko‘pincha tugunchada bo‘lib, ***stilodiy tutashmasdan*** qolishi mumkin (masalan, ***labguldoshlar, murakkabguldoshlar, chinniguldoshlar*** va boshqalar).

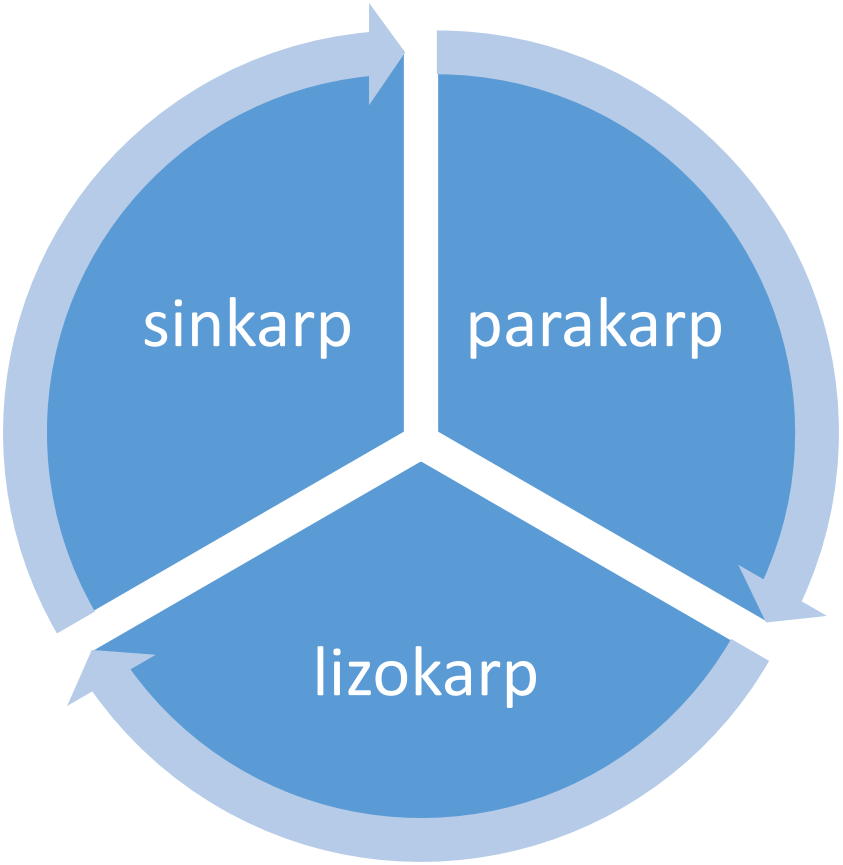


MEVACHI BARGNING AHAMIYATI:

- Tutashmay qolgan stilodiy va ***tumshuq parraklariga*** qarab ***ginetsey qancha mevachi barglardan*** yuzaga kelganligini aniqlash mumkin. Ba’zi oilalarda (***kampirchopondoshlar, sigirquyruqdoshlar, butguldoshlarda***) mevachi barglar butunlay tutashib, ***ustunchani*** hosil qiladi.

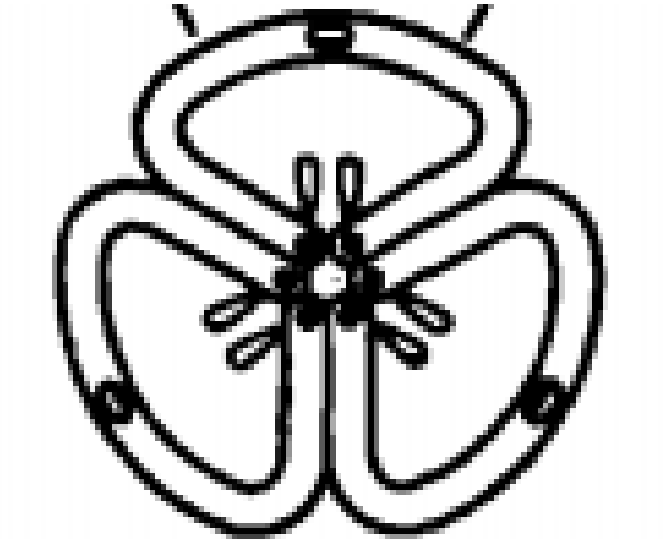


SENOKARP GINETSEY TURLARI:



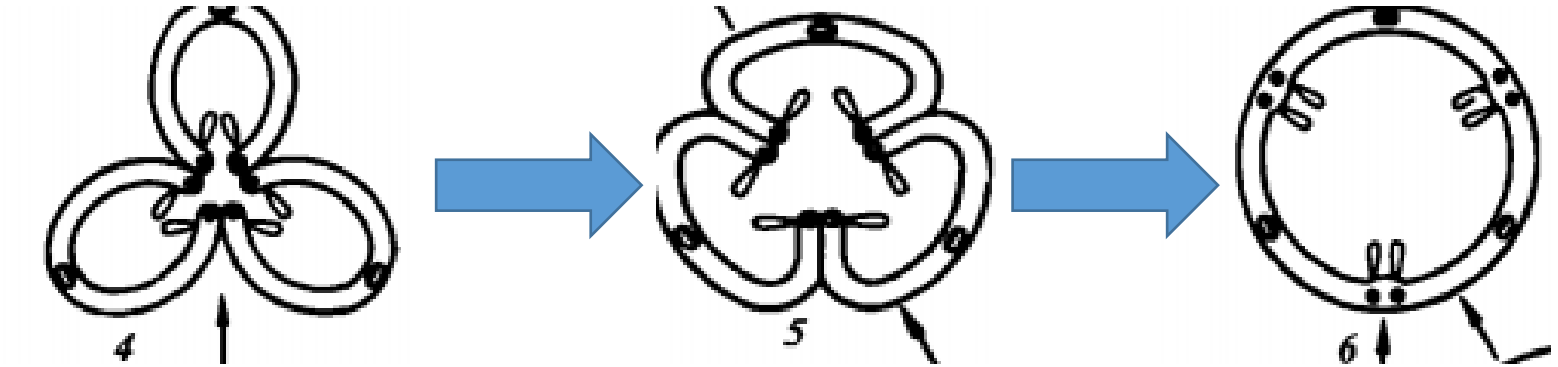
SINKARP (KO‘P CHANOQLI) GINETSEY:

- Sinkarp ginetsey ***apokarp*** ginetseydan hosil bo‘ladi. Ularda mevachi barglarning chetlari ichkariga o‘ralib, yonlari bir-biriga tutashadi va ***chanoq*** (uya) deb ataladigan xonalarga ajralgan bitta gul tuguni hosil bo‘ladi.



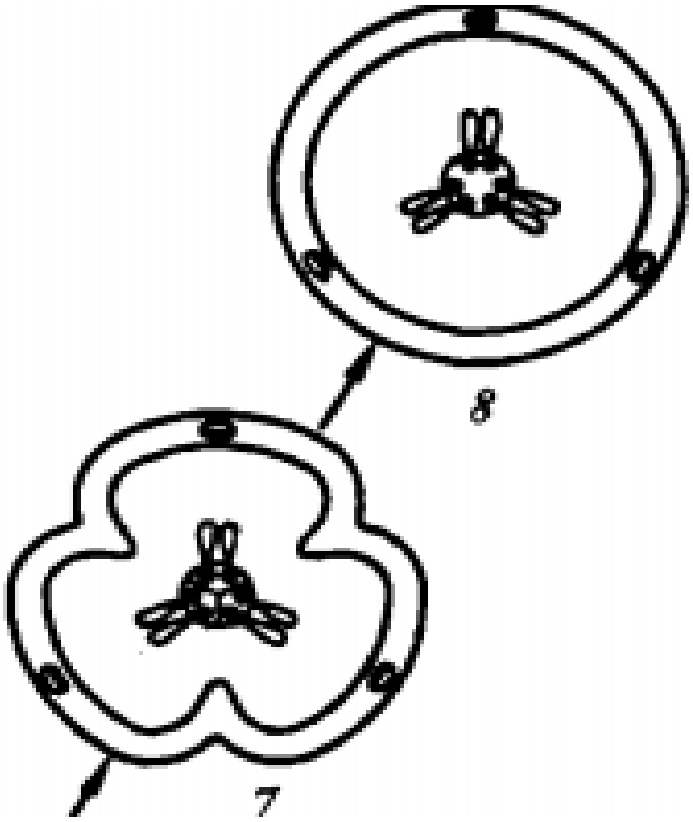
PARAKARP GINETSEY:

- P a r a k a r p ginetsey (yunon. p a r a — oldida yondosh, k a r p os — meva) deb bir necha mevachi barglarning yig‘indisidan hosil bo‘ladigan bir xonali urug‘chiga aytiladi (***gunafshadoshlar, qaraqatdoshlar, gazako‘tdoshlar, shumg‘iyadoshlarga*** xos belgidir).



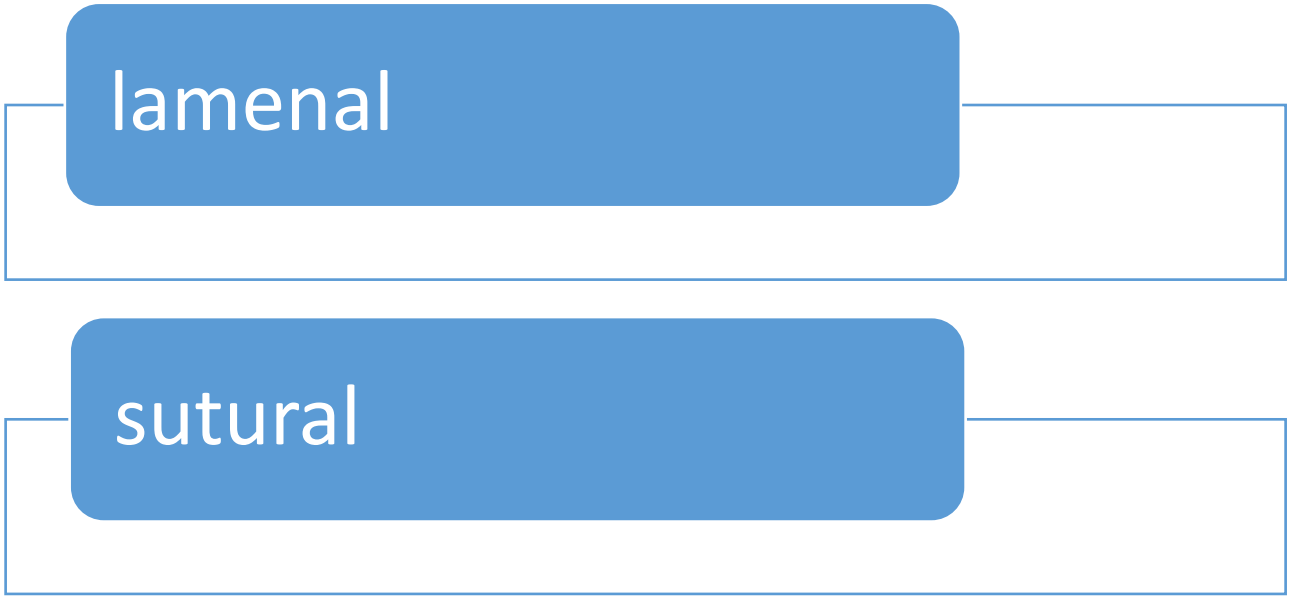
LIZOKARP GINETSIY:

- L i z o k a r p ginesey (yunon. l i z i s — eritish yo‘qotish) evolyusiya jarayonida sinkarp ginetseyning chanoqlar orasidagi pardasining erib yo‘qolib ketishidan bir xonali tuguncha hosil bo‘ladi. Bunday ginetsey ***primula*** va ***chinniguldoshlarga*** xosdir.



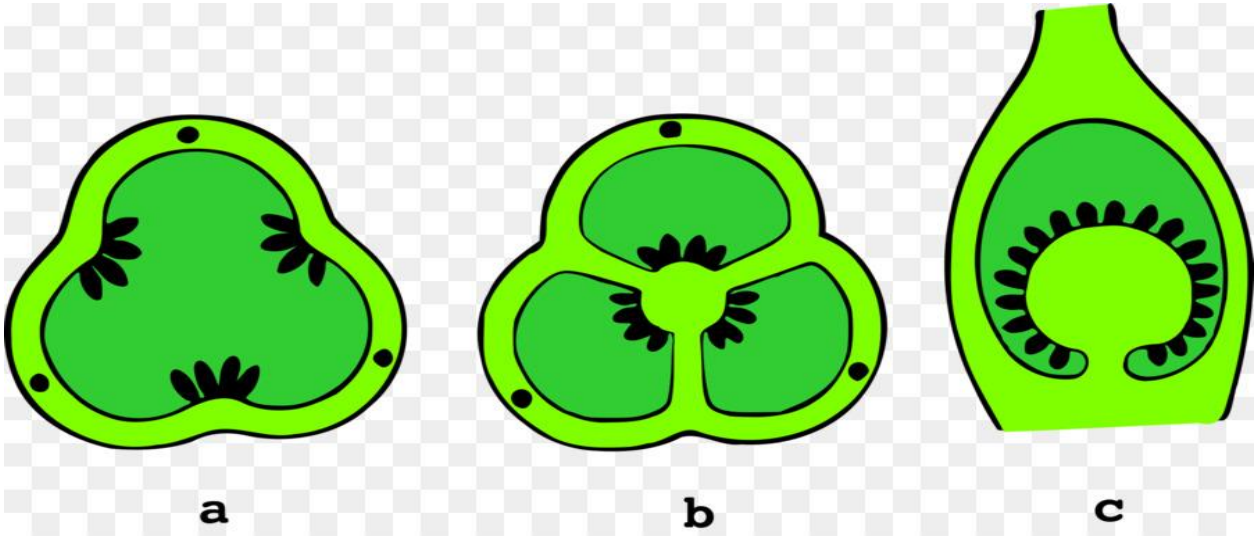
PLATSENTALAR YOKI URUG’O‘RNI:

- Tuguncha ichidagi urug‘kurtaklar (megasporangiylar) o‘rnashgan bo‘rtma ***plasentalar*** deb ataladi. Ularning quyidag turlari mavjud:



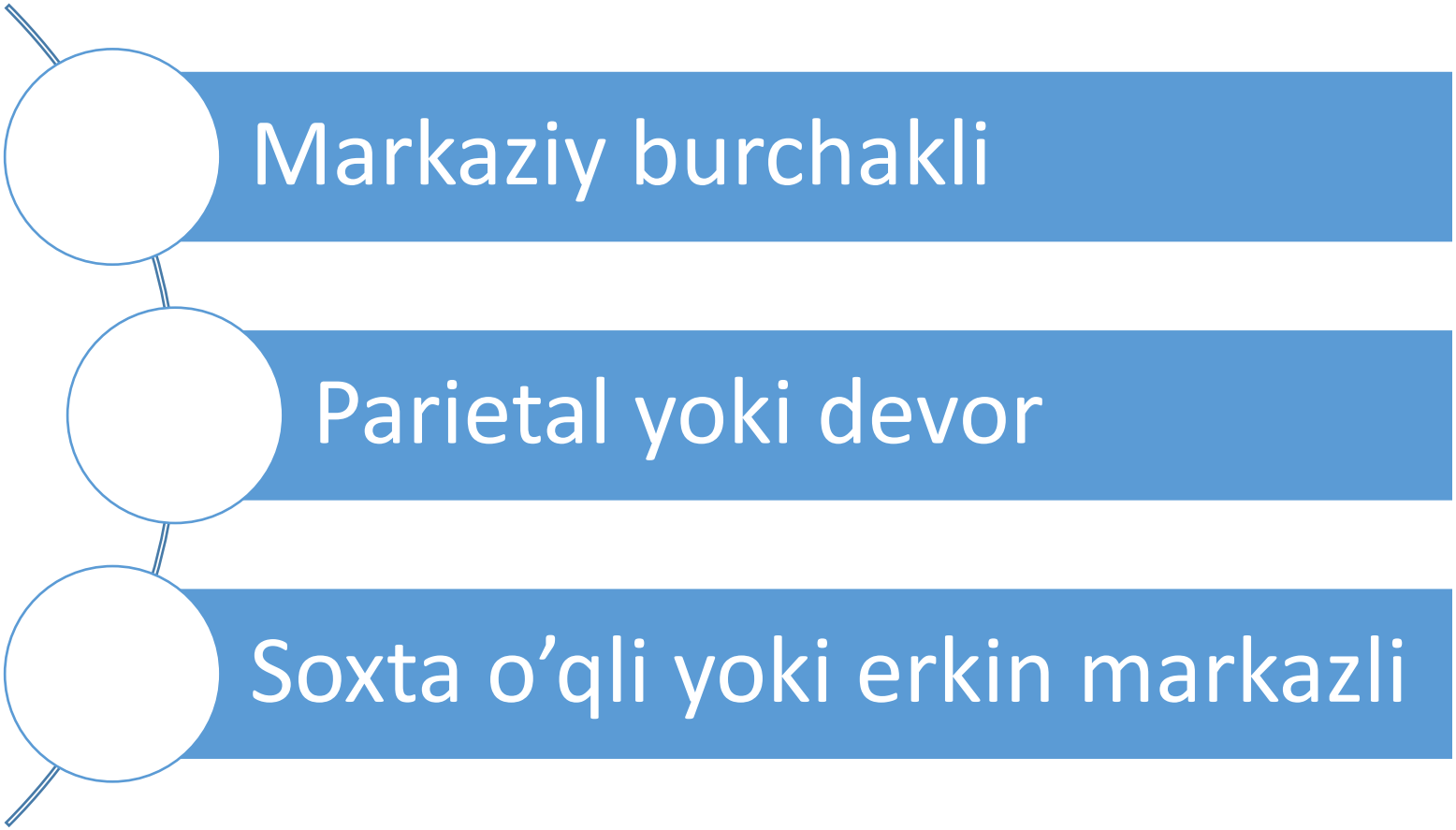
LAMINAL PLANTSETA:

- Laminal plasentalar (lot. l a m i n a — yassi, yaproq, plastinka) sodda tuzilgan bo‘lib, urug‘kurtak ***urug‘chibarglarning yuzasida*** o‘rnashadi. Masalan, Degeneriada urug‘kurtak mevachi barglarning o‘rtasi va yonida joylashsa, nilufardoshlarda urug‘kurtak mevachibarglarning ichida sochilgan bo‘ladi.



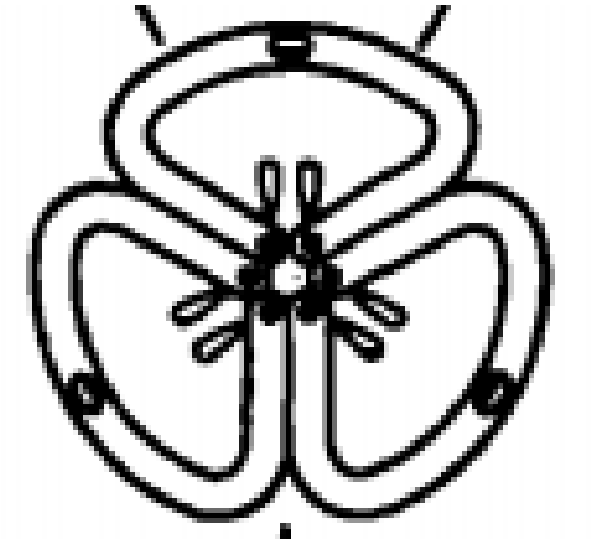
SUTURAL YOKI YON PLANTSETA:

- Sutural yoki yon plasentalar apokarp va sinkarp ginetseylarda uchraydi. Ularning uch xili mavjud:



MARKAZIY BURCHAKLI PLANTSETA:

- Markaziy burchakli plasenta urug‘kurtaklar bilan gul tuguni uyalarining ichki burchaklarida yoki chetida joylashgan. Bu shakldagi plasenta ***sinkarp ginetseyga*** xosdir (***piyozguldoshlar, qo‘ng‘iroqguldoshlar***).

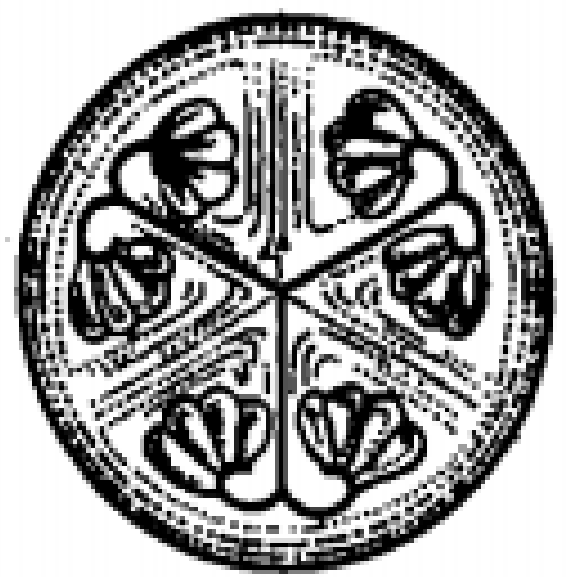


PARIETAL PLANTSETA:

- ***Parietal*** yoki ***devor plansentalar*** gul tuguni ichki devorlaridan uzunasiga joy oladi. Bu xildagi plasenta yopiqurug‘li o‘simliklarning juda ko‘p oilalarida uchraydi (***butguldoshlar, ko‘knorguldoshlar, toldoshlar, orxideyadoshlar, gunafshadoshlar va boshqalar***).

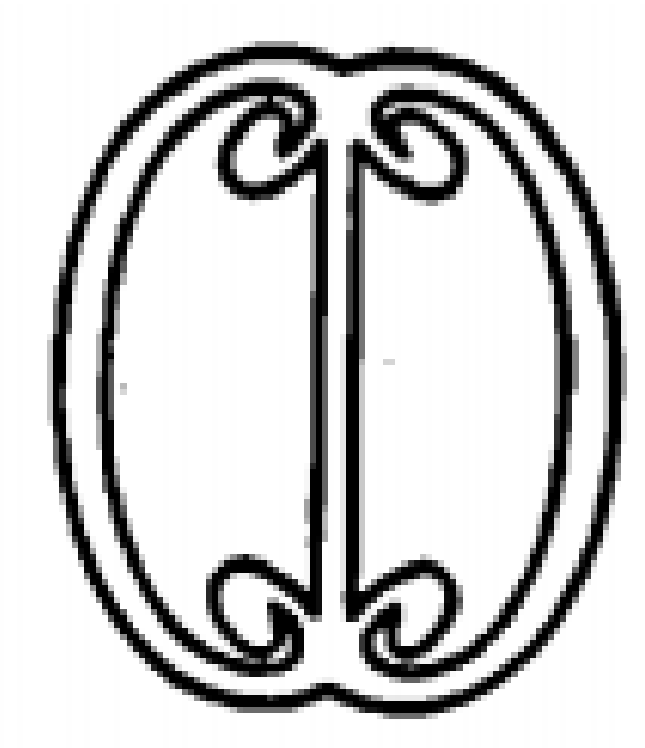
KO‘P UYLI TUGUNCHA:

- Ba’zan plasentalar tuguncha bo‘shlig‘iga bo‘rtib chiqadi va soxta to‘siq hosil qilib, ***ko‘puyli tuguncha*** vujudga keladi (***qovoqdoshlar***).



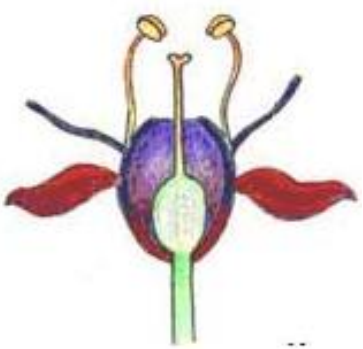
IKKI UYLI TUGUNCHA:

- Ikki uyli tuguncha ***butguldoshlarda*** uchraydi.

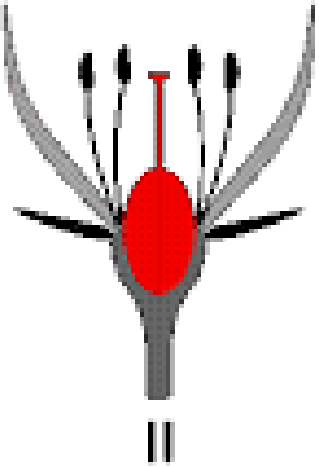


O‘RTA TUGUNLI GUL:

- Ko‘pgina ra’nodoshlar oilasiga mansub o‘simliklarda bitta yoki bir necha tuguncha ko‘zachaga o‘xshash botiq ***gipantiy*** (yunon. x i p o — osti, pastki qismi, a n t o s — gul) deb ataladigan gul bandining kengaygan gulqo‘rg‘onidan joy oladi. Bunday tuguncha ***o‘rta tugun*** yoki ***o‘rta tugun gul*** deb ataladi (masalan, ***na’matak, olcha, o‘rik, shaftoli*** va boshqalar).

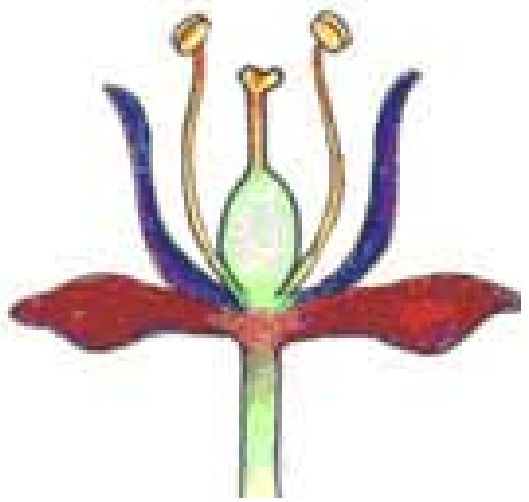


GIPANTIY

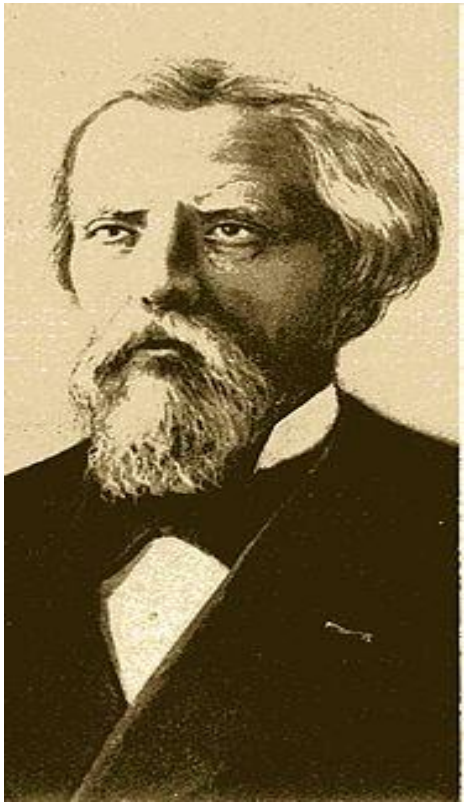


GUL TUGUNI EVOLYUTSIYASI:

- Filogenetik jihatdan ***ustki gul tuguni*** ostki gul tugunidan qadimiyroqdir. Ustki gul tugun ***sodda gulli ko‘p mevali*** o‘simliklarda; ostki gul tuguni esa ***murakkab gulli*** rivojlangan o‘simliklarda ko‘proq uchraydi. Ba’zi morfologlar ostki gul tuguni bir necha tugunchalarning tutashishidan hosil bo‘ladi deyishadi.



GUL TUGUNI EVOLYUTSIYASI:

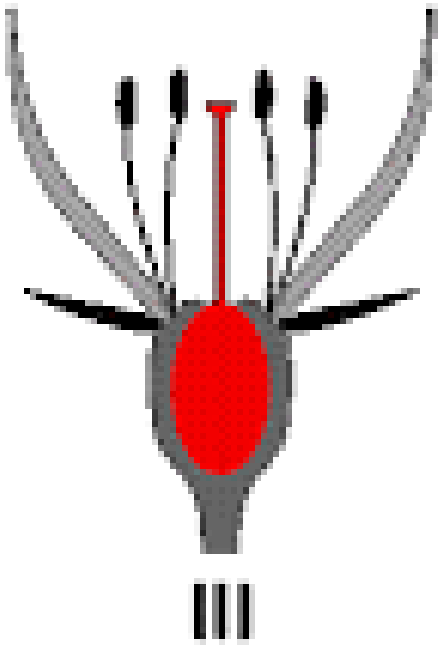


Филипп ван Тигем

- Fransuz olimi ***Van Tigem*** va uning shogirdlari o‘tkazuvchi bog‘lamlarning saqlanib qolishi, gul tuguni ***retseptakulyar*** (lot. retseptakulum — gulo‘rni) dan rivojlangan degan fikrni ilgari suradilar.

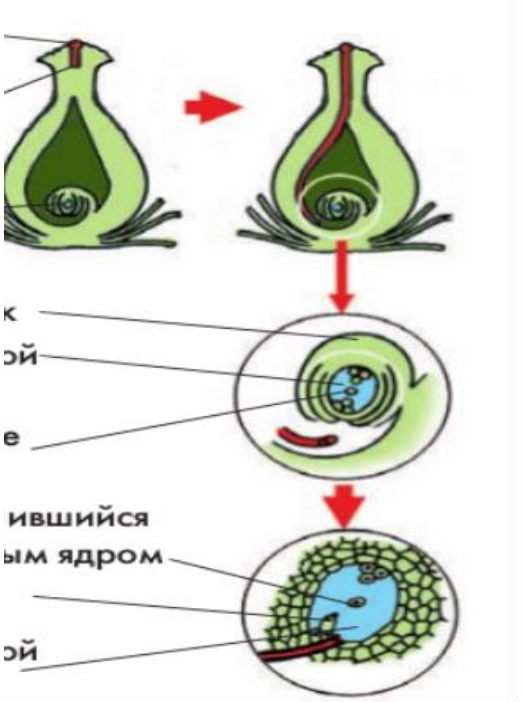
OSTKI GUL TUGUNI:

- Ostki gul tuguni ***fillom*** (yunon. f i l l o m - barg) nazariyasiga binoan ***gulqo‘rg‘on*** va ***changchilarning*** tutashishidan kelib chiqqan.



MEGASPOROGNEZ:

- Gulning tugunchasida bir yoki juda ko‘p miqdorda ***urug‘ murtak*** (megasporangiy) taraqqiy etadi, uning ichida ***urug‘chi gametofit*** (murtak xaltasi) rivojlanadi.

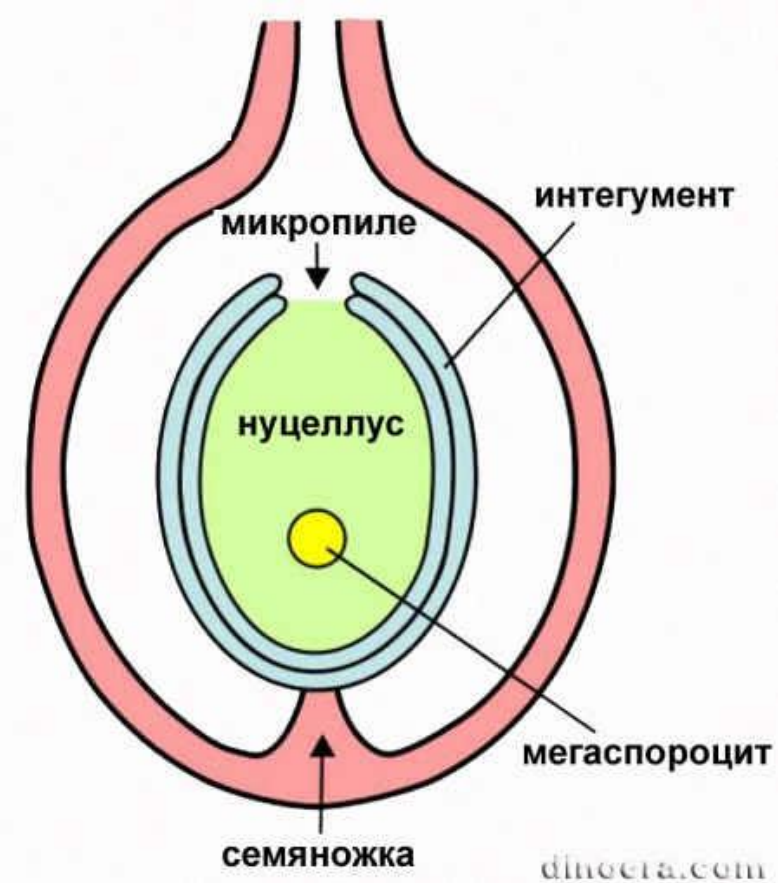


URUG’MURTAKNING O‘RGANILISHI:

Сергей Гаврилович Навашин

- Yopiq urug‘li o‘simliklarda urug‘murtakning rivojlanishi jarayonini bir qator olimlar ***Braun, Malpigi, Rozanov, Meyer*** va boshqalar o‘rganishgan. Murtak xaltasining rivojlanish jarayonini ***S.G.Navashin*** (1894, 1899) batafsil o‘rgangan.

URUG’MURTAKNING HOSIL BO‘LISHI:



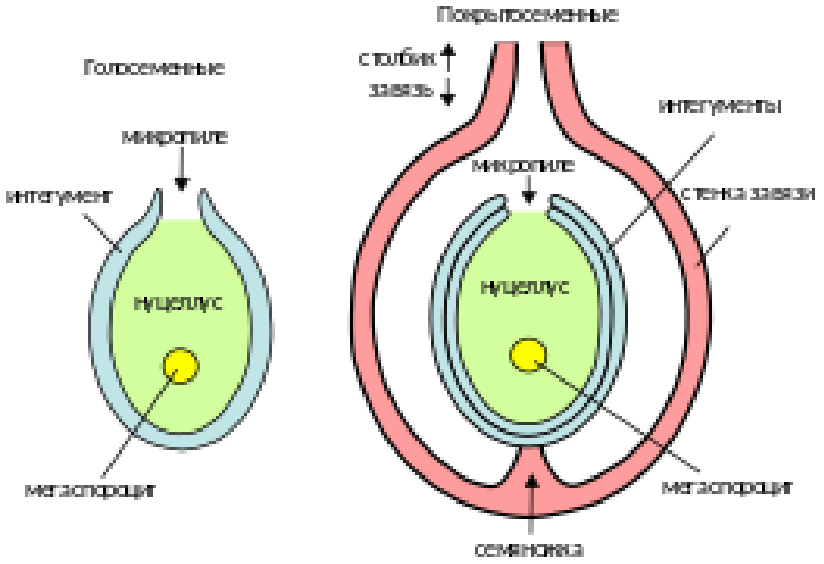
- ***Urug‘murtak*** yosh urug‘chi barglarining chetlarida kichkina do‘mboqchalar shaklida hosil bo‘ladi va hujayraning mitoz bo‘linishi natijasida tez o‘sadi. Keyinchalik uning yuqori tomonidan urug‘murtakning markaziy qismi ***nusellus***, pastki qismidan ***urug‘band*** rivojlanadi.

NUTSELLUS:

- Nusellus ***hujayralari*** parenxima to‘qimalariga o‘xshash bo‘lib, uning hujayralarida oziq moddalaridan: ***polisaxarid, lipid, oqsil, aminokislota, nuklein kislota, geteroauksin, vitamin, mineral tuzlar*** uchraydi.

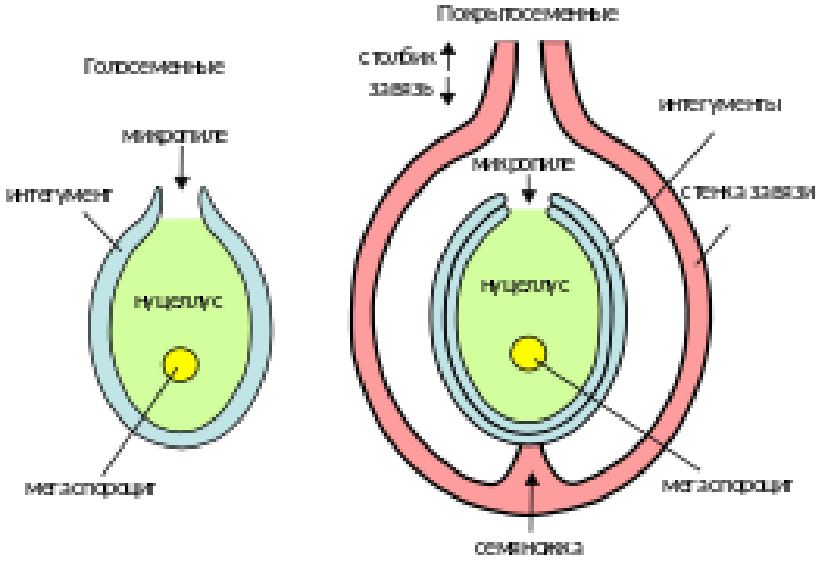
INTIGUMENT:

- Nusellusning yon devorlaridan do‘mboqchalar o‘sib, qoplag‘ich to‘qima — ***intigument***(lot. i n t i g u m e n t u m — qoplama)ga aylanadi. Yopiqurug‘li o‘simliklarda ***bir yoki ikkita*** intigument taraqqiy etadi. Ularning shu xususiyatiga qarab urug‘murtak ***bir*** yoki ***ikki qoplag‘ichli*** guruhga ajratiladi.



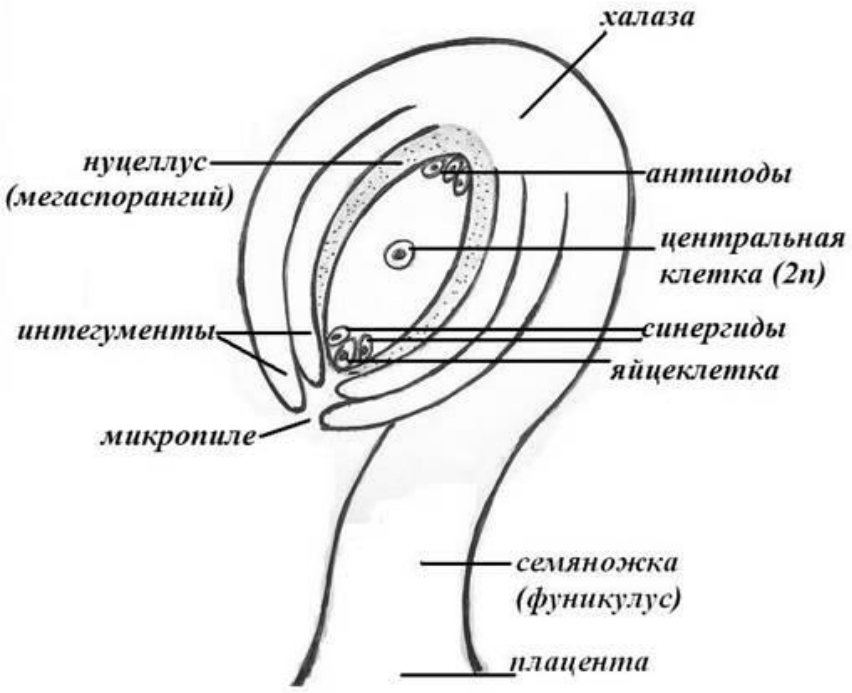
MIKROPILE:

- Intigument pastdan yuqoriga qarab o‘sib nusellusni o‘rab oladi, lekin uchi birlashmasdan ochiq qoladi, bunga ***chang yo‘li***, yoki ***mikropile*** deyiladi. Mikropile urug‘murtak va embrion xaltasi bilan tutashgan.



XALAZA:

- Urug‘murtakning tagi, urug‘band (funikulus) bilan tutashgan, uning osti ***xalaza*** deb ataladi.



URUG’MURTAK SHAKLLARI:

- Yopiqurug‘li o‘simliklarda tuguncha ichidagi urug‘murtakning shakli besh xil bo‘ladi.

Ortotrop yoki to’g’ri

Anatrop yoki teskari

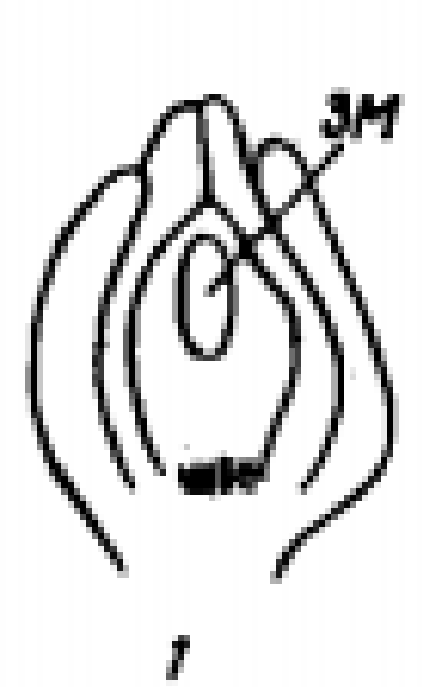
Gemitrop yoki yarim qayrilgan

Kampilotrop yoki bir tomonlama qayrilgan

Amfitrop yoki egma urug’murtak

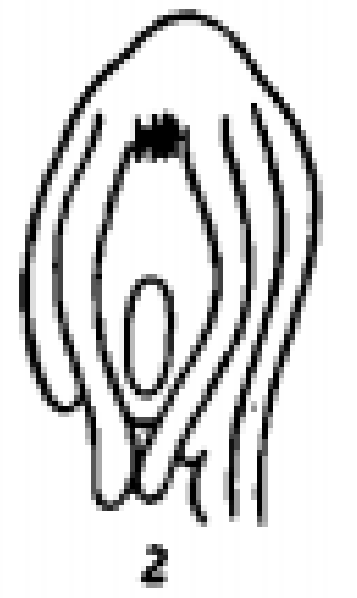
ORTOTROP URUG’MURTAK:

- Ortotrop yoki t o‘ g’ r i urug‘murtak ***torondoshlar, qalampirdoshlar, kuchalaguldoshlar*** oilasiga xos belgi bo‘lib, nusellus urug’ bandining davomidir.



ANATROP YOKI TESKARI URUG’MURTAK:

- Anatrop yoki t e s k a r i urug‘murtak urug‘murtakning notekis o‘sishi vaqtida uning ***uchi*** va ***uchidagi teshikcha*** (urug‘ yo‘li) teskari (ostki) tomonga aylangan bo‘ladi. Bu xildagi urug’murtak yopiqurug‘li o‘simliklarda eng ko‘p uchraydi.

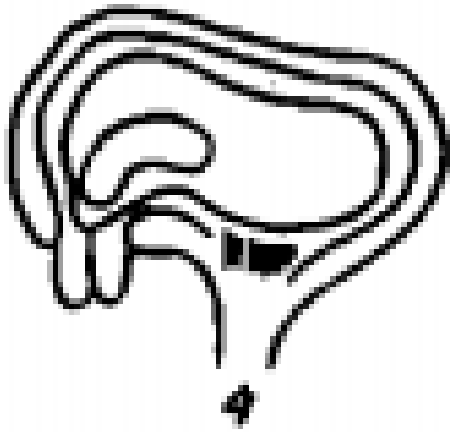


GEMITROP YOKI QAYRILGAN URUG’MURTAK:

- G e m i t r o p yoki y a r i m q a y r i l g a n urug‘murtak nusellus bilan intigument o‘sish davrida plasentaga nisbatan 90° qayrilgan (***sigirquyruqdoshlar, primuladoshlarda*** uchraydi).

KAMPILOTROP URUG’MURTAK:

- K a m p i l o t r o p yoki b i r t o m o n l a m a q a y r i l g a n urug’murtak. Bunday urug’murtakda nusellus bilan intigumentlarning bir tomoni bukilgan bo‘lib, ***chang yo‘li*** ***xalaza*** yoniga borib qoladi. Bu xildagi urug‘murtak ***kapalakdoshlar, dukkakdoshlar, butguldoshlar*** va boshqa oilalarda uchraydi.



AMFITROP URUG’MURTAK:

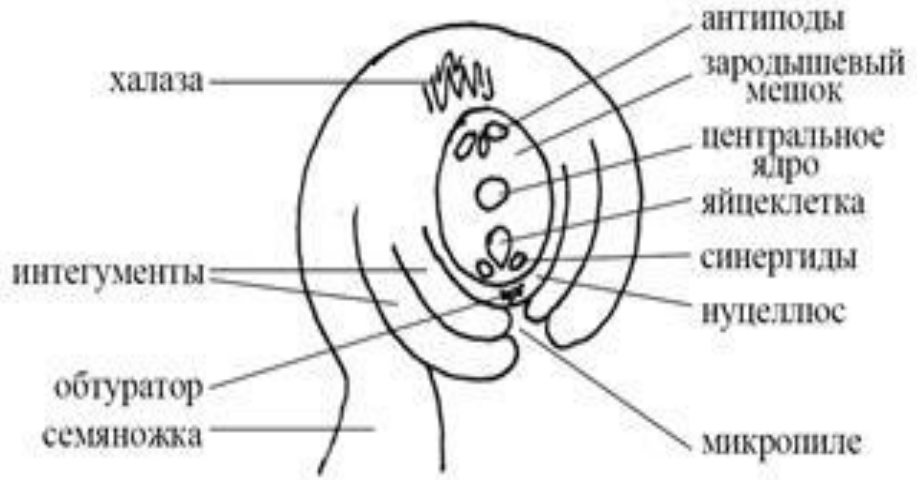
- A m f i t r o p yoki e g m a urug‘murtak. Bunda ***nusellus bukilib*** taqasimon shaklga kiradi (***kapalakdoshlarni*** ayrim vakillarida uchraydi).

URUG’KURTAK QOBIG’INING RIVOJLANISHI:

- Evolyusiya jarayonida yopiqurug‘li o‘simliklar ***nusellusining*** ***qalin devorlari yupqalashib*** boradi. Tojbarglari birlashmagan o‘simliklarda urug‘murtak ***krassinuselyat*** (lot. kraus. — qalin), tojbarglari birlashgan o‘simliklarda esa ***tenuinuselyat*** (lot. t e n i u i s — yupqa) rivojlangan.

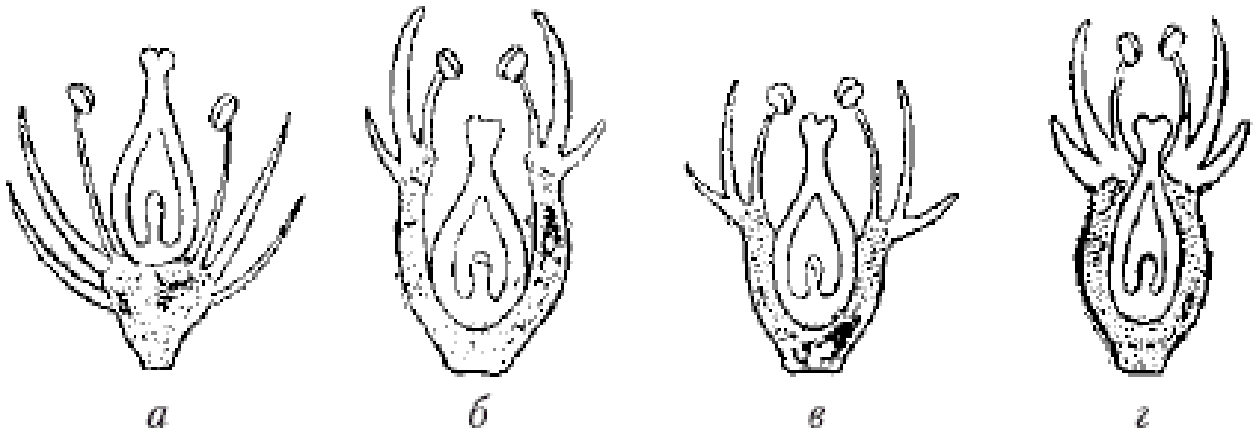
OBTURATOR:

- Ba’zi yopiqurug‘li o‘simlik vakillarida urug’band yoki intigumentlardan ***obturator*** deb ataladigan maxsus to‘qima hosil bo‘ladi va chang naychasining o‘sib embrion xaltasiga yetishiga sababchi bo‘ladi. Bu to‘qima urug‘murtak rivojlanishining dastlabki davrida paydo bo‘lib, urug‘lanish sodir bo‘lgandan so‘ng yemiriladi.



URUG’MURTAKNING TARAQQIY ETISHI VA MEGASPOROGNEZ:

- Urug‘murtakni hosil qiluvchi do‘mboqcha shaklidagi meristema nusellus tashqi epiderma hujayralarining antiklinal va subepidermik hujayralarning periklinal bo‘linishi natijasida ***urug‘chi arxesporiy*** taraqqiy etadi.

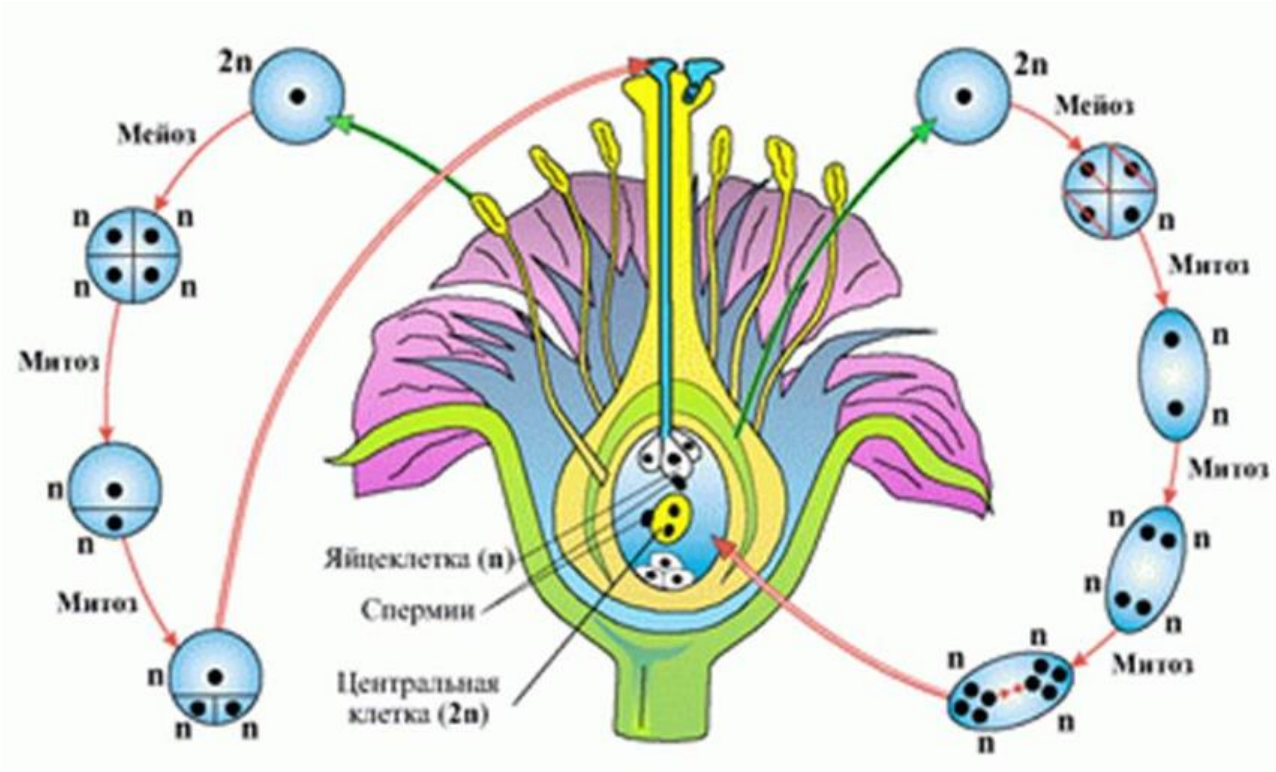


ARXESPORA:

- Yopiqurug‘li o‘simliklar urug‘murtak uchida ba’zan bitta yoki bir necha bir hujayrali ***arxesporiy*** hosil bo‘ladi. Arxespora hujayralari yirik va sitoplazmaga boy bo‘lib, juda tez bo‘linish qobiliyatiga eta.
- Ko‘p hujayrali arxesporiy ***atirguldoshlar, qayindoshlar, murakkabguldoshlar, sho‘radoshlarda*** uchraydi.

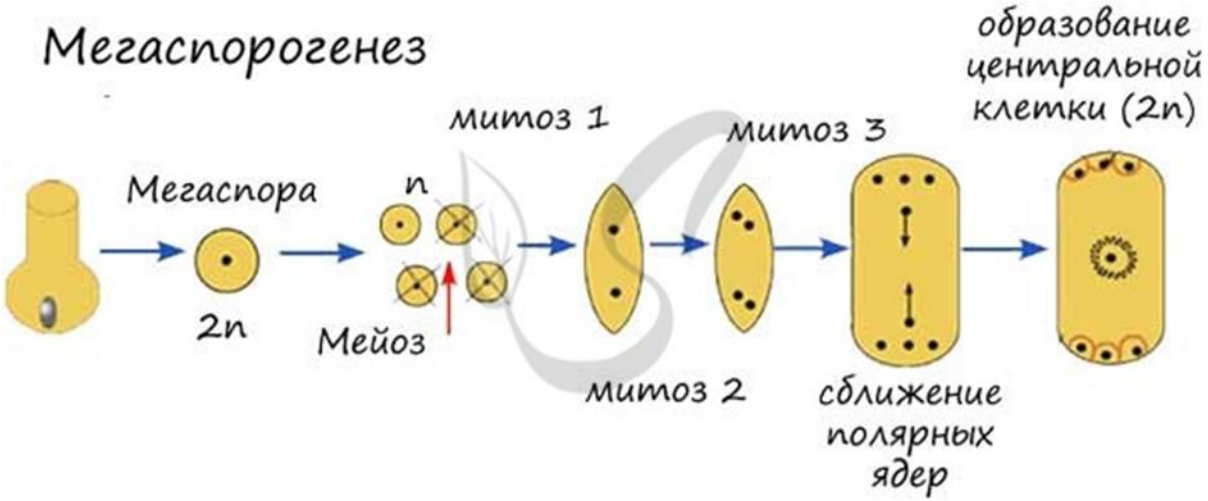
ARXESPORANING RIVOJLANISHI:

- Arxespora hujayrasining bittasi bo‘linib, dastlabki parietal (devor) — ***qoplag‘ich*** va ***ona megaspor*** hujayrasini hosil qiladi. Qoplag‘ich hujayra ko‘pincha krassinusellyat urug‘ murtaklarda bo‘ladi, tenuinusellyat urug‘murtaklarda uchramaydi.



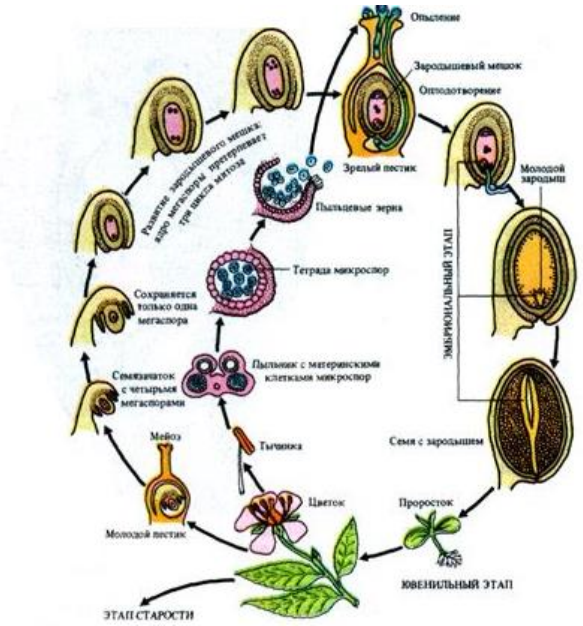
ARXESPORANING RIVOJLANISHI:

- Ko‘pchilik yopiqurug‘li o‘simliklarda arxespora hujayrasi ikki marta meyoz bo‘lingandan keyin ***to‘rtta gaploid megaspor*** hosil bo‘ladi. Bu jarayonga ***megasporogenez*** deyiladi.



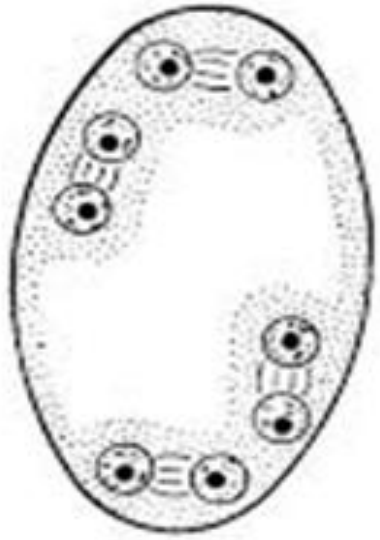
ARXESPORANING RIVOJLANISHI:

- Xalaza (ahyon-ahyonda mikropilla) tomondagi hujayralar ***juda kattalashib ketadi***, yuqoridagi hujayralarni siqib qo‘yadi va pirovardida ***bir yadroli urug‘chi gametofit*** yoki ***embrion xaltasiga*** aylanadi.



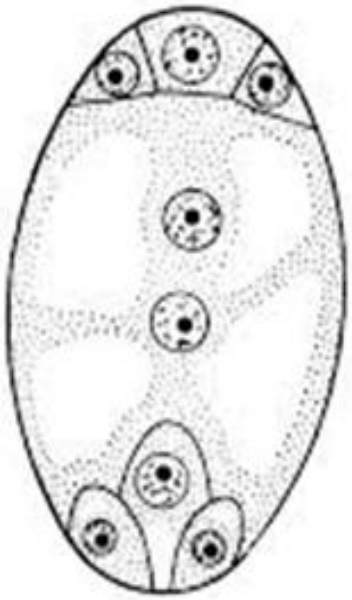
ARXESPORANING RIVOJLANISHI:

- Embrion xaltasi uch marta bo‘linish natijasida hosil bo‘ladi. Birinchisida ***ikki yadro*** hosil bo‘ladi va hujayra qutblaridan joy oladi. Keyinchalik bu yadrolar yana ikki marta bo‘linadi va embrion xaltasining har ikki qutb tomonida ***to‘rttadan yadro*** yuzaga keladi.



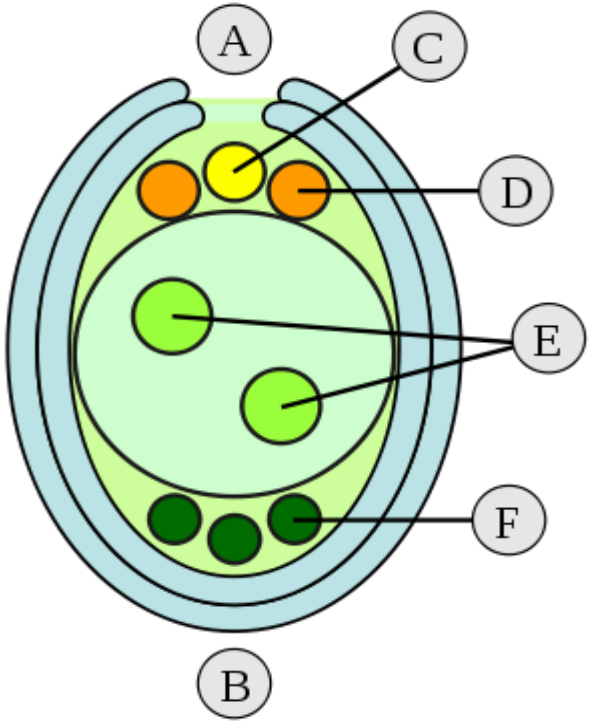
ARXESPORANING RIVOJLANISHI:

- Har qaysi qutbdagi yadrolar ***bittadan markazga*** yo‘naladi va bir-biri bilan qo‘shilib, embrion xaltasining ikkilamchi ***diploid*** yoki ***markaziy yadrosini*** hosil qiladi.



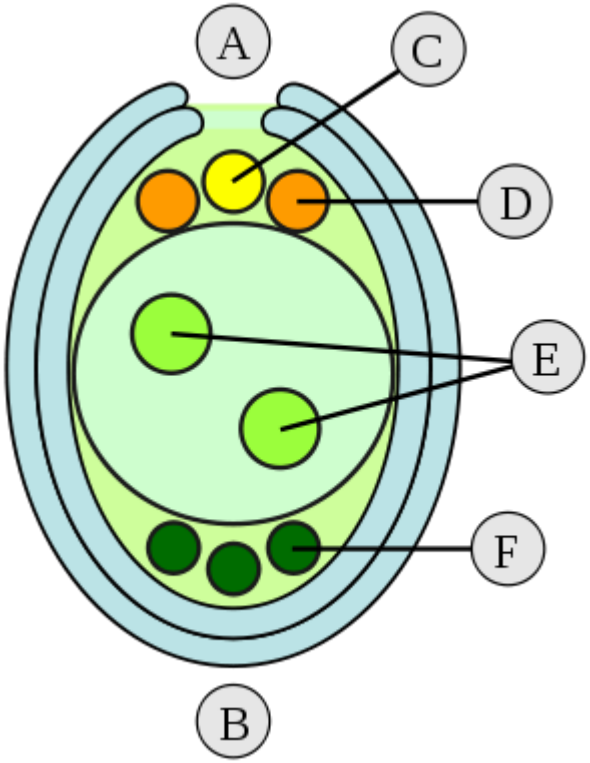
SINERGIDLAR:

- Embrion xaltasining chang yo‘li yonida turgan uchta yadro atrofiga protoplazm: to‘planib hujayra hosil bo‘ladi. Bu ***hujayralar tuxum*** apparatini tashkil etadi: ularning o‘rtasidagi eng yirik tuxum hujayra, uning yonidagi kichikroq yadroli hujayralar yordamchi yoki ***sinergidlar*** deb ataladi.



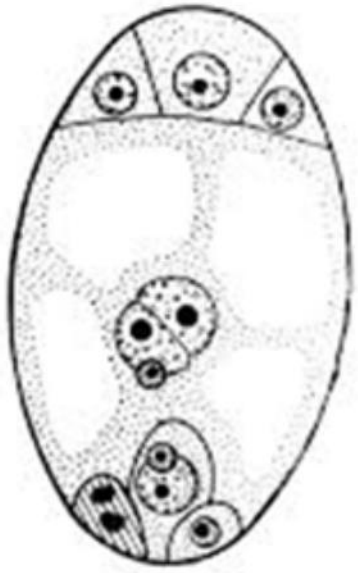
ANTIPODLAR:

- Xalaza tomonida turgan uchta yadro atrofi ham protoplazma bilan o‘ralgan. Bu hujayralar ***antipodalar*** (yunon. a n t i — qarshi, p o d u s — oyoq) deb ataladi.



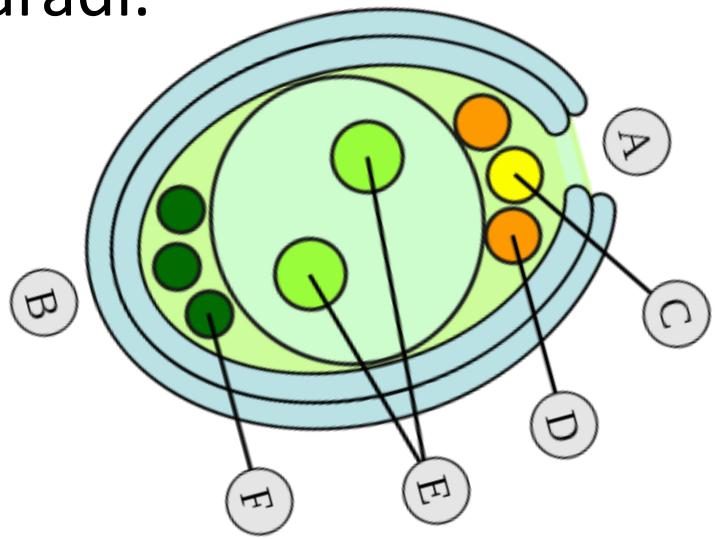
TUXUM HUJAYRA:

- Tuxum hujayra apparati juda ham murakkab, u ko‘pincha embrion xaltasining ***mikropile*** tomonida taraqqiy etadi chunki, bu joyda oqsillar, RNK sintez etiladi. Bundan tashqari uning tarkibida mitoxondriy, leykolastida kraxmal, lipidlar to‘planadi.



SINERGID VA ANTIPODLARNING AHAMIYATI:

- Sinergidlar chang naychasi qobig‘ining eritishda, uni embrion xaltasi va tuxum hujayraga o‘tishini tezlashtirishda ishtirok etadi. Antipodlar xalazadan oziq moddalarni urug‘murtak va embrion xaltasiga o‘tkazish vazifasini bajaradi.



MUSTAQIL TA’LIM TOPSHIRIG’I:

- Megasporogenez va uning ahamiyati.

E’TIBORINGIZ UCHUN RAHMAT!