MIRZO ULUG‘BEK NOMIDAGI
O‘ZBEKISTON MILLIY UNIVERSITETI
JIZZAX FILIALI



"BIOTEXNOLOGIYANING RIVOJLANISH ISTIQBOLLARI VA MUAMMOLARI"

MAVZUSIDAGI RESPUBLIKA MIQYOSIDAGI ILMIY-TEXNIK ANJUMAN TO‘PLAMI





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МИНИСТЕРСТВО ВЫСШЕГО ОБРАЗОВАНИЯ, НАУКИ И ИННОВАЦИЙ РЕСПУБЛИКИ УЗБЕКИСТАН

ДЖИЗАКСКИЙ ФИЛИАЛ НАЦИОНАЛЬНОГО УНИВЕРСИТЕТА УЗБЕКИСТАНА ИМЕНИ МИРЗО УЛУГБЕКА

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CULTURAL-MORPHOLOGICAL CHARACTERISTICS OF ISOLATES OF ENDOPHITE BACTERIA ISOLATED FROM MEDICINAL PLANTS

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Abstract: A total of 45 isolates were isolated from the roots, stems, and leaves of medicinal plants found in fields and yards such as Plantago major L., Hypericum perforatum L., Kalanchoe daigremontiana, Cichorium intybus L., Melissa officinalis L., Mentha piperita L., Matricaria recutita L. Among them, it was observed that endophytic bacteria were found relatively more in Kalanchoe daigremontiana and Cichorium intybus L. The KD-L7 isolate from the leaves of the medicinal plant Kalanchoe daigremontiana has a high affinity for 1% casein and 1% starch, and its hydrolysis zone size was found to be 6-10 mm.

Key words: endophyte, medicinal plants, microorganisms, biologically active substances, plant-endophyte symbiosis, Bacillus amyloliquefaciens.

It is known that various endophytic microorganisms coexist in medicinal plants. According to the studies presented in the literature, it was found that endophytic microorganisms mainly synthesize biologically active compounds. Currently, one of the important tasks is to solve various issues in agriculture, that is, to improve plant nutrition, to protect them from various phytopathogens, to increase soil fertility and the yield of agricultural crops, to create biological preparations based on endophytic bacterial isolates isolated from medicinal plants, and to use them effectively [1-2]. The aim of this study was to study the cultural and morphological characteristics of endophytic bacterial isolates isolated from medicinal plants. For this purpose, 45 bacterial isolates were isolated from the internal tissues of the roots, stems, and leaves of medicinal plants such as sedum, dalchoi, chamomile, sachratki, kalanchoe, lemon, and mint included in the pharmacopoeia list. Some isolated endophytic bacterial isolates were studied for their susceptibility levels to 1% casein and 1% starch and parameters such as hydrolysis zones, color, transparency, edge and surface parts of colonies.

According to the obtained results, PmL - R1 and PmL - R2 isolates isolated from the roots of Zubturum (PmL.), PmL - S4, PmL - S5 and PmL - S6 PmL - L7 isolates from the stem and leaves of the plants selected for research were resistant to 1% amylase. PmL - S3 and PmL - L7 isolates isolated from the stem to 1%

casein, HpL - R1 and HpL - R2 isolates isolated from the roots of field grass (HpL.) to 1% amylase, HpL - S3, HpL - S4 and HpL - L5 isolates isolated from the stem and leaves to 1% casein, roots of Kalanchoe degremona (KD) , all isolates isolated from stem and leaf to both 1% casein and 1% amylase, CiL - R1 and CiL - R2 isolates isolated from the roots of Sachratqi (CiL.) were resistant to both 1% casein and 1% amylase, CiL - S3 and CiL - S4 isolates isolated from the stem were resistant to 1% amylase, CiL - S5 isolate to 1% casein, all leaf isolates CiL - L6, CiL - L7 and CiL - L8 to 1% amylase, All MoL - R1, MoL - S2, MoL - S3 and MoL - S4 isolates isolated from the root, stem and leaf of the lemon (MoL.) plant were exposed to 1% casein, MoL - L5 isolate was exposed to 1% casein and 1% amylase, Mint (MpL.) all isolates MpL - R1, MpL - R2, MpL - R3, MpL - S4, MpL - S5, MpL - S6, and MpL - L7 isolated from the plant were also treated with 1% casein, MrL - R1 isolate isolated from the roots of chamomile (MrL.) to 1% amylase, MrL - R2 isolate isolated to 1% casein and 1% amylase, MrL - S3, MrL - S4 and MrL - L5 isolates isolated from stem and leaf 1 It was found that there are degrees of inclination to % casein.

Among these isolates, the KD-L7 isolate isolated from the leaves of Kalanchoe degremona has a hydrolysis zone size of 6-10 mm, a clear silky color, a smooth edge, clear transparency, a dense and shiny surface, a high affinity for 1% casein, and a 1% amylase. It was observed that it is relatively less.

It was observed that the size of the hydrolysis zone of MoL - L5 isolated from the leaves of one of the medicinal plants is 5-8 mm, the color is brown, the edge is flat, the transparency is duller, and the surface part is raised. The hydrolysis zone size of the isolate was 4-7 mm, the color was clear, smooth, rough, transparent, and shiny. Accordingly, in our further studies, MoL - L5 isolate isolated from Lemon leaf and MrL - R2 isolate isolated from the root of Chamomile (Matricaria recutita L.) had a higher susceptibility to 1% casein and 1% amylase and larger hydrolysis zones. KD - L7 isolate isolated from the leaf of Kalanchoe degremona plant was selected. The KD - L7 isolate, selected as a result of the screening, was identified using the MALDI TOF mass spectrometry method. The tested KD - L7 isolate was identified as Bacillus amyloliquefaciens. The KD - L7 isolate, selected as a result of the screening, was identified using the MALDI TOF mass spectrometry method. The tested KD - L7 isolate was identified as Bacillus amyloliquefaciens. Selected Bacillus amyloliquefaciens -UzMU 22 named for further studies.

Thus, parameters such as growth of Bacillus amyloliquefaciens -UzMU 22 strain isolated from medicinal plant Kalanchoe degremona in solid and liquid medium, resistance to gelatinase, catalase, hemolytic, amylase, protease and bile acid medium, ability to synthesize enzymes such as pH lipase were studied.

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DORIVOR *LYCIUM RUTHENICUM* MURR TARKIBIDAGI BIOLOGIK FAOL MODDALARNING AHAMIYATI.

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Annotatsiya: *Lycium ruthenicum* Murr o‘simligi tarkida uchrovchi biologik faol moddalar; flavonoidlar, polisaxaridlar va alkaloidlar o‘simlik mevalari va barglarida uchraydigan antosiyaninlarning antibakterial, farmakologik va biologik xususiyatlar bayon qilingan.

Kalit so‘zlar: *Lycium ruthenicum* Murr, antosiyaninlar, flavonoidlar, polisaxaridlar, antioksidant, farmakologiya, dorivor o‘simliklar.

Lycium ruthenicum Murr *solanaceae* oilasiga mansub, yarim buta yoki butasimon o‘simlik bo‘lib asosan Markaziy Osiyo, Xitoy, Mo‘g‘ulistonda o‘sadi. Mazkur o‘simlik O‘zbekistonning Namangan, Farg‘ona, Samarqand, Buxoro viloyatlarida va Qizilqum, Ustyurt, Amudaryo, Sirdaryo, Orol dengizi bo‘ylaridagi qurg‘oqchil va sho‘rlangan hududlarida tabiiy holda uchraydi [8]. Ushbu dorivor o‘simlik antioksidant xususiyatlari va biologik faol moddalarini o‘zida saqlashi bilan, an’anaviy tibbiyotda keng qo‘llaniladi. *L. ruthenicum* Murr tarkibida uchrovchi kvertsetin, rutin, miritsetin, kaemferol, luteolin kabi bir guruh flavonoidlar bo‘lib, ular kuchli antioksidant hisoblanib, hujayralarni yuqori shikastlanishlardan himoya qiladi hamda yurak-qon tomir tizimini yaxshilash hujayrani immun tizmini kuchaytirishda ishtrok etadi.

Mevalarining tarkibida oqsil, minerallar, uglevodlar, karotin, B1, B2, PP, C vitaminlari va urug‘larida esa bir qancha makro va mikro elementlar, polisaxaridlar va aminokislotalarga boy, ekanligi aniqlangan. Bundan tashqari qora jing‘il (maxalliy nomi) tarkibidagi antosiyaninlar organizmga tushgan patogen mikroorganizmlarning hujayra devoriga zarar yetkazadi va ularning o‘sishiga to‘sqinlik qiladi. Shuningdek antosianinlarning mikroorganizmlarga ta’sir ko‘rsatish mexanizmlaridan biri ularning, genetik materialiga zarar yetkazib,