0.37 μmol/L). There was a 34% ($p < 0.05$) decrease in TBARS level compared to the control samples. Decreased of TBARS levels were also observed when equine plasma was incubated with extracts derived from *C. majus* stalk parts collected both urban and rural areas, i.e. 15.9 ± 1.25 μmol/L *vs.* 12.63 ± 0.68 μmol/L for urban areas, 15.9 ± 1.25 μmol/L *vs.* 13.69 ± 1.87 μmol/L for rural areas, respectively. There was a 21% ($p < 0.05$) decrease in TBARS level for extracts derived from *C. majus* stalk parts collected from urban areas and a 14% ($p > 0.05$) decrease for extracts derived from *C. majus* stalk parts collected from rural agglomerations compared to the untreated samples.

The level of total antioxidant capacity was statistically changed in the equine plasma suspension incubated with extracts obtained from the leaves and roots of *C. majus* collected from urban agglomerations (25.83 ± 2.37 % *vs.* 39.88 ± 5.61 % for the root extracts, 25.83 ± 2.37 % *vs.* 37.87 ± 5.62 % for leaf extracts of *C. majus*). Similarly, the TAC level was statistically changed in the equine plasma suspension incubated with an extract obtained from the leaves and roots of *C. majus* collected from rural agglomerations (25.83 ± 2.37 % *vs.* 43.07 ± 3.04 % for the root extracts, 25.83 ± 2.37 % *vs.* 36.89 ± 3.68 % for stalk extracts of *C. majus*).

A statistically significant decrease in oxidatively modified protein adducts was observed compared to the control sample (14.61 nmol/mL) for root extracts collected from both rural (13.98 nmol/mL) and urban (13.52 nmol/mL) agglomerations. Other results were observed when evaluating the levels of ketonic derivatives of OMB in the equine plasma of horses after incubation with *C. majus* extracts. A statistically significant decrease in OMP was observed only for root extracts collected from urban agglomerations (12.54 nmol/mL) compared to the control samples (14.75 nmol/mL).

Our study proved that stem and root extracts of *C. majus* collected from both rural and urban areas reduce the level of biomarkers of lipid peroxidation (TBARS), oxidatively modified proteins, and increase the total antioxidant capacity exhibiting antioxidant activity. Thus, the *C. majus* extracts present antioxidant potential. It is therefore a promising alternative for medicinal products based on medicinal plants.

Bacteria of poly(ethylene terephthalate) biofilm

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Poly(ethylene terephthalate) (PET) is a polymer resistant to biodegradation, there are a small number of microorganisms capable of biodegradation (Yoshida, Hiraga, Takehana, Taniguchi, Yamaji, Maeda, Toyohara, Miyamoto, Kimura, Oda, 2016; Auta, Emenike, Fauziah, 2017; Chen, Wang, Cheng, Wang, Tong, Yang, Wang, 2020). The accumulation of PET in the environment creates a global environmental problem (Chen, Wang, Cheng, Wang, Tong, Yang, Wang, 2020). The key point of biodegradation is the colonization of the plastic surface by microorganisms and their biofilms formation (Kowalczyk, Chyc, Ryszka, Latowski, 2016; Oberbeckmann, Osborn, Duhaime, 2016). Therefore, the aim of this work was to isolate bacteria from the biofilm formed on the surface of PET.

Isolation of pure bacterial culture was performed from biofilm formed on the surface of a PET bottle, which was in the soil. For the isolation and cultivation of the culture we used the modified Postgate's "C" medium: without lactate, yeast extract, citrate; with PET and trace amounts of ethyl alcohol (on PET samples after chemical sterilization) as a Carbon source. Cultivation temperature 29°C. Studies of cultural-morphological and physiological-biochemical properties of bacteria were carried out by conventional methods. To establish the systematic position of the isolated bacteria, the 16S rRNA gene was sequenced using the methods described in in a previously published article (Tkachuk, Zelena, Parminska, Yanchenko, Demchenko, 2017). Phylogenetic analysis was performed using the program MEGA 6.0.

During the study, isolates of NUChC PET1 and NUChC PET2 were isolated, which had different growth rates under aerobic conditions in our modified Postgate's "C" medium: 2nd and 7th days of cultivation, respectively. Therefore, we further investigated the NUChC PET1 isolate. The cells of the isolate were found to be gram-negative short rods with rounded ends, single or in pairs, not forming spores. Bacteria are motile, have a rapid helical motion; catalase and oxidase positive.

As a result of molecular genetic analysis of the genome of the NUChC PET1 isolate, fragments of the 16S rRNA gene with a size of 562 and 565 bp were amplified and sequenced. Primary comparison of the obtained total sequence using the BLAST program showed 99.82% similarity with members of the genus *Achromobacter*: *A. ruhlandii*, *A. denitificans*, *A. insolitus*, *A. animicus*, *A. xylosoxidans*. On the constructed dendrogram of genetic similarity, the NUChC PET1 strain was included in one group with the species *A. xylosoxidans*, which confirms its belonging to this species. This species is known to participate in the biodegradation of high-crystalline polyethylene (Kowalczyk, Chyc, Ryszka, Latowski, 2016).

Thus, *A. xylosoxidans* may also be involved in PET biodegradation. However, this should be investigated by polymer weight loss. Also, the prospect of further research is to determine the intensity of biofilm formation by *A. xylosoxidans* on the PET surface.

Біорізноманіття міксоміцетів Західного Лісостепу і Українських Карпат: порівняльний аналіз

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Проведено вивчення і порівняння таксономічного різноманіття і субстратних уподобань міксоміцетів лісових екосистем об'єктів природно-заповідного фонду (далі ПЗФ), розташованих у трьох різних ботаніко-географічних регіонах: Західному Лісостепі (НПП «Подільські Товтри»), Прикарпатських (НПП «Галицький») та Карпатських лісах (ПЗ «Ґорґани»).

Дослідження міксоміцетів були здійснені у грабово-дубових, дубово-грабових та дубових лісах НПП «Подільські Товтри» (липень 1999 р., жовтень 2008 р.); у дубових, дубово-грабових, липово-дубових, кленово-липово-дубових, букових лісах і нечисленних насадженнях з ялиці, ялини, сосни у НПП «Галицький» (серпень, вересень-жовтень 2010 р.) та в ялинових з домішкою ялиці білої (*Abies alba* Mill.), кедрових з домішкою ялини європейської (*Picea abies*), соснових з сосни звичайної (*Pinus sylvestris* L.) та з сосни гірської, або жерепу (*P. mugo* Turra), ялицево-букових,