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DOWN REGULATION OF POTATO VIRUS Y (PVY) COAT PROTEIN (CP) EXPRESSION BY *IBERIS GIBRALTARICA* PROTEIN EXTRACT

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Potato virus Y (PVY) is among the most destructive potato viruses and a solemn threat to efficient seed production worldwide. Almost 70 % potato yield losses are due to early PVY infection. Coat protein (CP) gene has a significant function in host adaptation in most of the plant viruses. CP has become more frequent and extensively studied in PVY and other potyviruses to generate resistance against the potyviruses in different crops. In this study, we also targeted the CP gene and evaluate the in vitro potential of Iberis gibraltarica total protein extract against the CP gene expression. Total protein of Iberis gibraltarica, was isolated and quantified. The full length CP gene was amplified from PVY infected potato plant leaves and cloned into mammalian expression vector. It was later transfected into mammalian cell line to obtain the transient expression and mRNA expression of the CP gene against the total protein of Iberis gibraltarica was analyzed through the real-time PCR. Results show that total protein of Iberis gibraltarica down regulates the mRNA expression more than 90 % in vitro studies.

***Key words**: Iberis gibraltarica, Potato virus Y, Coat protein, pcDNA 3.1* (+).

НЕГАТИВНА РЕГУЛЯЦІЯ ЕКСПРЕСІЇ БІЛКА ОБОЛОНКИ (СН) Y-ВІРУСУ КАРТОПЛІ (PVY) ЕКСТРАКТОМ БІЛКА *IBERIS GIBRALTARICA*

Y-вірус картоплі (PVY) є одним з найдеструктивніших вірусів картоплі і значною загрозою для її ефективного вирощування у всьому світі. Майже 70 % втрат урожаю картоплі спричинені раннім зараженням PVY. Ген білка оболонки (СР) відіграє значну роль в адаптації господаря до більшості вірусів, що вражають рослини. Білок оболонки у PVY та інших потивірусів почали вивчати все частіше та інтенсивніше з метою створення резистентності до них у різних рослин. У цьому дослідженні ми також вивчали ген СР та оцінювали *in vitro* потенціал екстракта загального білка *Iberis gibraltarica* у боротьбі проти експресії гена СР. Було виділено загальний білок *Iberis gibraltarica* з подальшою оцінкою його кількісних характеристик. Повнорозмірний ген СР ампліфікували з листків картоплі, інфікованої PVY, і клонували в екпресійний вектор ссавців. Далі його трансфектували на лінію клітин ссавців для отримання транзієнтної експресії, експресію мРНК гена СР порівняно з загальним білком *Iberis gibraltarica* аналізували за допомогою ПЛР у реальному часі. Результати показали, що загальний білок *Iberis gibraltarica* знижує рівень експресії мРНК у *in vitro* дослідженнях більше, ніж на 90 %.

***Ключові слова:** Iberis gibraltarica*, Y-вірус картоплі, білок оболонки, пкДНК 3.1 (+).

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