

## ROLE OF LEAF EPICUTICULAR WAX LOAD AND COMPOSITION AGAINST WHITEFLY POPULATION AND COTTON LEAF CURL VIRUS IN DIFFERENT COTTON VARIETIES

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*Current experiment was conducted on existing cotton varieties against Cotton Leaf Curl Virus (CLCuV) and whitefly infection. The objective of this study was to determine the difference in leaf epicuticular wax load and composition of CLCuV resistant and susceptible cotton varieties. Settling behaviour of whitefly in previous studies showed more whitefly population on CLCuV susceptible whereas less on CLCuV resistant cotton plants. Correlation analysis of CLCuV infection with whitefly population and leaf epicuticular wax load was performed. CLCuV infection has significant positive correlation with whitefly population and significant negative correlation with leaf epicuticular wax load. These results depicted more leaf epicuticular wax load and less whitefly attack on *G. arboreum* as compared to *G. hirsutum* varieties. It was also hypothesized that resistant cotton varieties may have different wax composition than susceptible varieties. For this purpose, GC-MS analysis of leaf epicuticular wax of both types of varieties was performed. GC-MS results of CLCuV resistant and susceptible cotton plants also showed differences in quantity and composition of leaf epicuticular wax. Based on these results, we can conclude that leaf epicuticular wax acts as a barrier against CLCuV and whitefly infection. Different biochemical compounds present in leaf epicuticular wax along with their quantity, are also responsible for the resistance and susceptibility of *G. arboreum* and *G. hirsutum* varieties.*

**Key words:** *Gossypium hirsutum*, *Gossypium arboreum*, CLCuV, whitefly, GC-MS analysis.

РОЛЬ ПОКРИТТЯ З ЕПІКУТИКУЛЯРНОГО ВОСКУ НА ЛИСТІ ТА КОМПОЗИЦІЇ ЛИСТКА У БОРОТЬБІ ПРОТИ БІЛОКРИЛКИ ТА ВІРУСУ СКРУЧУВАННЯ ЛИСТЯ У РІЗНИХ СОРТІВ БАВОВНИ

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Було проведено експеримент з вивчення вірусу скручування листків (CLCuV) та зараження білокрилкою на існуючих сортах бавовни. Мета цього дослідження полягала у встановленні різниці між покриттям епікутикулярного воску на листі та композицією листя у стійких та чутливих сортів бавовни. Визначення поведінки білокрилки під час попередніх досліджень показало більшу кількість комах білокрилки на чутливих до CLCuV сортах, та меншу – на рослинах, стійких до CLCuV. Було проведено кореляційний аналіз інфікування CLCuV та інфікування білокрилкою і покриттям з епікутикулярного воску на листі. Інфікування CLCuV мало значну позитивну кореляцію з інфікуванням білокрилкою і значну негативну кореляцію з покриттям епікутикулярним воском на листі. Ці результати продемонстрували більше покриття епікутикулярного воску на листі та менше інфікування білокрилкою на *G. arboreum* порівняно з сортами *G. hirsutum*. Було висунуто гіпотезу, що стійкі сорти бавовни можуть мати інший склад воску, ніж чутливі сорти. Було проведено ГХ-МС аналіз епікутикулярного воску на листі обох видів сортів. Результати ГХ-МС рослин бавовни, стійких та чутливих до CLCuV, також продемонстрували відмінності в кількості та складі епікутикулярного воску на листі. На підставі цих результатів ми можемо зробити висновок, що покриття епікутикулярного воску діє як бар'єр проти CLCuV та білокрилки. Різні біохімічні сполуки, присутні у покритті епікутикулярного воску та їхня кількість також відповідають за стійкість та чутливість сортів *G. arboreum* і *G. hirsutum*.

**Ключові слова:** *Gossypium hirsutum*, *Gossypium arboreum*, CLCuV, білокрилка, ГХ-МС аналіз.

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