

SLADKOR V PRAHU KOT NOV MEDIJ ZA DIAGNOSTIKO VIRUSOV MEDONOSNE ČEBELE (*Apis mellifera*) V SKLOPU DOBRE ČEBELARSKE PRAKSE PO SLADKORNEM TESTU ZA DETEKCIJO VAROJE

Antonella CERSINI¹, Jorge RIVERA GOMIS, Marco PIETROPAOLI, Jernej BUBNIČ, Giovanni FORMATO

Izvleček

Med patogeni medonosne čebele igrajo virusi pomembno vlogo. Do sedaj jih je bilo opisanih že veliko vrst. Številne vrste virusov so lahko prisotne v čebelnjaku v subklinični obliki, spet druge vrste pa lahko povzročajo resna obolenja čebel ali celo propad cele družine. Za spremljanje prisotnosti in količine virusov v čebeljih družinah se običajno vzorči odrasle čebele ali zalego iz satja. V sklopu projekta BPRACTICES smo razvili in testirali novo metodo vzorčenja s sladkorjem v prahu. Metoda vzorčenja je enaka kot metoda za določanje stopnje napadenosti s pršico varoja. Vzorec odraslih čebel vzamemo iz satja in jih damo v kozarec zaprt z mrežastim pokrovom, dodamo sladkor v prahu in stremo kozarec nad čisto površino, da zberemo sladkor v prahu, ki ga uporabimo kot matriks za laboratorijske analize. Izolacijo virusov lahko opravimo iz sladkorja ali pa odraslih čebel, ki smo jih uporabili za testiranje stopnje napadenosti z varoja. Za določanje količine virusa akutne čebelje paralize (ABPV), kronične čebelje paralize (CBPV) in virusa deformiranih kril (DWV) je bila uporabljena metoda RT-PCR v realnem času. RT-PCR v realnem času narejen iz sladkorja v prahu se kaže kot zanimiva tehnika za detekcijo virusov. Ta tehnika vzorčenja se lahko uporabi tudi za ostale povzročitelje čebeljih bolezni kot sta *Paenibacillus larvae* ali *Melissococcus plutonius*. Nadaljnje raziskave so potrebne za določanje občutljivosti in specifičnosti metode.

Ključne besede: čebelji virusi, sladkorni test, varoja, RT-PCR

POWDER SUGAR AS NEW MATRIX FOR DIAGNOSIS OF HONEYBEE (*Apis mellifera*) VIRUSES IN THE CONTEXT OF GOOD BEEKEEPING PRACTICE OF THE VARROA INFESTATION LEVEL ASSESSMENT

Abstract

Among all honeybee pathogens, viruses play an important role in honeybee health. So far, many different viruses of honeybees have been characterized. Many species of viruses can be present in the apiary in a subclinic phase and some of them can cause significant damage or even collapse of honeybee colonies. To monitor the presence and the quantity of viruses in honeybee colonies, usually samples of adult bees or brood are taken from the combs. In the context of the BPRACTICES project, we tested and developed a new sampling method using powder sugar. The sampling technique is the same as the one in use to assess the Varroa infestation level. The sample of adult bees is taken from the comb and placed in a jar closed with a mesh cap. Powdered sugar is added and the jar is shaken above a clear surface to collect the powdered sugar that will be used as a matrix for laboratory analyses. The investigation of the viruses can be carried out both from powdered sugar and/or from adult bees tested for the varroa infestation level assessment. The amount of Acute Bee Paralysis Virus (ABPV), Chronic Bee Paralysis Virus (CBPV) and Deformed Wing Virus (DWV) in the samples was determined by Real Time RT-PCR. The Real Time RT-PCR carried out from powdered sugar may represent a new, valuable technique to detect viruses. This method, using powder sugar, could also be used for early detection of other honeybee pathogens, like *Paenibacillus larvae* or *Melissococcus plutonius*. Further research should be carried out to set up sensitivity and specificity of this new diagnostic method..

Key words: bee viruses, powder sugar test, varroa, RT-PCR

¹ Istituto Zooprofilattico Sperimentale del Lazio e della Toscana "M. Aleandri, giovanni.formato@izslt.it