PHYTOPLASMAS DETECTION EFFECTIVENESS BASED ON SYMPTOMATOLOGY, DAPI STAINING AND SPECIFIC PCR AT PLUM PLANT MATERIAL OF DIFFERENT CATEGORIES

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ABSTRACT

Phytoplasmas are important pathogenic invaders of fruit trees. Numerous symptoms associated with the destruction of the normal equilibrium of growth regulators are among the most displayed, and because of this, symptomatology only may not serve for accurate diagnosis of phytoplasmatic infection. Microscopic and molecular methods are among the most used in this respect. DAPI staining detection is based on the use of 4', 6-diamidino-2phenylindole, a fluorescent stain, which lights under UV light, and makes phytoplasmas visible. The PCR based methods of detection address mainly the amplification of ribosomal and non-ribosomal specific DNA from phytoplasmas. Present study compares the results on the detection of phytoplasmatic infection at 300 plum samples, from four collections in Korça, Albania based on symptomatology, DAPI staining and specific PCR. From the symptomatology results of three consecutive years (2014-2016) is clear that symptoms are displayed differently in different periods of time for the same trees; DAPI staining also provides different situation on presence of phytoplasmas in different periods of sampling; Specific PCR proves successful for the amplification of ribosomal DNA fragment from all the analyzed plant material. In conclusion, the three methods complement each-other and might be used to detect phytoplasmas infection, but specific PCR is more accurate, fast and reliable method.

Keywords: Symptomatology, DAPI staining, PCR, phytoplasma, Plum leptonecrosis phytoplasma.