

“Black Aspergilli” in vineyards of conventional and organic farming: Investigating the population structure and mycotoxigenic capacity of *Aspergillus* species section *Nigri*.

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Grapevines considered to be one of most important crops worldwide as well as in Greece. Grape's Black rot disease caused by several mycotoxigenic species of Black *Aspergilli* section *Nigri*, is one of the most important pre- as well as post-harvest diseases of grapevines, while contaminated grape products and derivatives with *Aspergillus* mycotoxins may have an important impact on consumers health. Overall the aim of this project is the investigation of the population structure and the determination of the *in vitro* mycotoxigenic capacity of black *Aspergilli* species collected from conventional and organic growing systems. In detailed, asymptomatic grape berries were collected for two consecutive years (2018 & 2019) from organic and conventional grapevines originated from different regions all over the Greece. In total, 300 isolates of *Aspergillus* spp. were selected and identified by amplicon sequencing of three reference genes. More specifically, *A. tubingiensis*, *A. uvarum*, *A. carbonarius* and *A. niger* were identified as the casual agents of Black rot disease in Greece, while *A. uvarum* and *A. tubingiensis* considered to be the predominant species for 2018 and 2019, respectively. In addition, for both sampling years, higher frequencies of *A. tubingiensis* and *A. uvarum* were found in the organic and in the conventional grapevines, respectively. *In vitro* mycotoxin production (OTA, FB₂, FB₃ and FB₄) was evaluated in two selective media, while the analysis and the quantification were performed with LC/Q-TOF MS system. The analysis revealed significant high mycotoxin production, especially to the isolates originated from the conventional vineyards. In addition, *A. carbonarius* identified as the main OTA (0.02 to 16 µg/g) producer, while *A. niger* was the main producer of FB₂(5 to 35 µg/g), FB₄ and FB₆.

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