

# **PROGETTI DI “RICERCA CORRENTE 2018”**

## **RELAZIONE FINALE**

**N. identificativo progetto: IZS LT 04/18 RC**

**Progetto presentato da:**

**ISTITUTO ZOOPROFILATTICO SPERIMENTALE**

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**Area tematica: Sicurezza Alimentare**

**Titolo del progetto: Tecniche molecolari per l'identificazione di funghi epigei: studio di un modello integrato per la gestione efficace delle intossicazioni da funghi.**

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## SUMMARY

This study aims at building an ITS gene dataset to support the Italian Health Service in mushroom identification. The target species were selected among those mostly involved in regional (Tuscany) poisoning cases. For each target species, all the ITS sequences already deposited in GenBank and BOLD databases were retrieved and accurately assessed for quality and reliability by a systematic filtering process. Wild specimens of target species were also collected to produce reference ITS sequences. These were used partly to set up and partly to validate the dataset by BLAST analysis. Overall, 7270 sequences were found in the two databases. After filtering, 1293 sequences (17.8%) were discarded, with a final retrieval of 5977 sequences. Ninety-seven ITS reference sequences were obtained from 76 collected mushroom specimens: 15 of them, obtained from 10 species with no sequences available after the filtering, were used to build the dataset, with a final taxonomic coverage of 96.7%. The other 82 sequences (66 species) were used for the dataset validation. In most of the cases (n = 71; 86.6%) they matched with identity values 97–100% with the corresponding species.

The dataset was able to identify the species involved in regional poisoning incidents. As some of these species are also involved in poisonings at the national level, the dataset may be used for supporting the National Health Service throughout the Italian territory. Moreover, it can support the official control activities aimed at detecting frauds in commercial mushroom-based products and safeguarding consumers.

Keywords:

Key words: mushrooms; poisoning; species identification; internal transcribed spacer; genetic dataset; official control