# DNA Barcoding and domestication of three *Lentinus* species in Sri Lanka

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### Abstract

The edible wild mushrooms are cultivated and consumed worldwide. In Sri Lanka, only few such species have been accurately identified and domesticated. This study aims the molecular based identification of three edible mushroom species and development of protocols for their experimental domestication. Mushrooms species collected were tentatively identified based on morphological characters of fruiting bodies and culture characteristics in four different media. Genomic DNA were extracted and PCR amplifications of ribosomal Internal Transcribed Spacer (ITS) region were carried out. Initial molecular identification done by NCBI's BLAST similarity search and phylogenetic analyses confirmed the isolates belong in *Lentinus sajor-caju*, *L. tuber-regium,* and *L. squarrosulus.* Out of rice, corn and corn grits with millet mixture that were tested as mother spawn media, corn showed the highest mycelial colonization density. Out of rubber saw dust (RSD), mango saw dust (MSD) and MSD with corn cobs (CC) mixture that were utilized as growth media, all three species showed the highest colonization rate on MSD. Successful fruiting body formations were observed after 88 and 74 days respectively for *L. sajor-caju* and *L. tuber-regium* on RSD. *Lentinus squarrosulus* produced fruiting bodies on MSD after 49 days. *L. squarrosulus* fructified the most on MSD whereas *L. tuber-regium* showed the highest yields on RSD. All mushrooms tested show the antioxidant properties as assessed by a quantitative Ferric Reducing Antioxidant Power (FRAP) test. This is the first successful domestication effort of *L. sajor-caju* and *L. tuber-regium* in Sri Lanka provided with freshly collected and DNA barcoded strains.