SHORT COMMUNICATION

# A Note on Fungi Intercepted on *Camptotheca acuminata* Decne Seeds from China

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Four accessions of *Camptotheca acuminata* Decne imported from China were processed for quarantine clearance. Quarantine processing revealed the presence of *Alternaria porri* (Ellis) Ciferri, *Curvularia lunata* (Wakker) Boedijn and *Periconia byssoides* Persoon and their significance is discussed along with the need for further research.

**Key Words: *Alternaria porri*, *Camptotheca acuminata*, China, Fungi, Interception**



*Camptotheca acuminata* Decne (Nyssaceae), commonly called as "Happy tree" or "Tree of joy", is a native plant of China. It has been used effectively in Chinese medicine for treating psoriasis, liver and stomach problems and common cold for many centuries. It was found to produce a potent antitumor alkaloid, called camptothecin (Wall *et al*., 1966). The bark of stem and root, and seeds can yield camptothecin (a pentacyclic quinoline alkaloid) in trace amounts, while the highest concentrations are found in tender young leaves (Lucas, 2009). The tree is now being considered as "*Endangered*" by the Government of China and export is restricted. Recently, seeds of four accessions of *C. acuminata* Decne were imported from China and processed for quarantine clearance. The paper deals with fungi intercepted along with their importance.

All samples were visually examined under stereo-binocular microscope and seeds suspected with infection from each sample were taken out and subjected to standard blotter test. Ten seeds were plated in each Petri dish with three replications/sample. After incubation for 7 days at $20\pm1^0$C under alternating cycles of 12 h light and darkness, plates were examined under stereo-binocular microscope for the presence of seed-borne pathogens, if any. Slides were made and examined on 8$^{th}$ day under compound microscope for specific identification of the pathogens. *Alternaria alternata* (Fr.) Keissl. and *Curvularia lunata* (Wakker) Boedijn were recorded in two accessions with infection percentage of 6.7 (EC687397) and 23 (EC687398). Long (2003) identified *A. alternata*, *Pestalotia guepinii* Desm (Steyaert), *Epicoccum nigrum* Link as leaf spot causing agents, while *Discula umbrinella* (Berk. & Br.) Morelet, *Drechslera* sp., and *Nectria* sp. (Fr.) Fr., and *Fusarium avenaceum* (Corda ex Fr.) Sacc. as root rot causing species in *C. acuminata*. Li *et al*. (2005) reported that plant diseases such as leaf spots and root rot are some of the major fungal diseases that can limit the yields of *C. acuminata* plants and decrease the production of camptothecin (CPT). It was also observed that these fungal diseases were less serious in some higher CPT yielding varieties. *C. lunata* is also responsible for leaf spot disease in many crops including pearl millet (Nitharwal *et al*., 1991).

*Alternaria porri* (Ellis) Ciferri was recorded in one accession of *C. acuminata* (EC687399). It is a seed-transmitted fungus, known to infect mainly onion, garlic and other *Allium* spp. The fungus incites purple blotch in onion, causing heavy yield loss ranging from 2.5 to 87.8% during *kharif* season (Srivastava *et al*., 1994). Seeds infected by this pathogen had a reduced germination.

*Periconia byssoides* Persoon was observed in one accession (EC687397) with 20% infection. This fungus is known to be parasitic causing leaf spots in castor (Karan, 1966) and stem blackening in hemp. *Cladosporium* sp Link: Fr. was recorded in all four accessions. Many species of *Cladosporium* are known to cause stem canker in hemp and other drug plants and among them the most common species is *C. herbarum* (Mc Partland *et al*., 2004). It also attacks leaves and seeds. *Acladium* sp., *Chaetomium* sp. Kunze, *Periconia byssoides* Persoon, *Cunninghamella* sp. Matruchot, and *Glomurularia* sp. were the other fungal species recorded on some accessions. Glomurularia leaf mold was recorded on *Gingko biloba*, a medicinal plant

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during 1998 in the Alabama plant diagnostic lab (http://www.ag.auburn.edu/hort/landscape/STGOnovember98.html).

There are reports on isolation of endophytic fungi from roots, branches, leaves and fruits of *C. acuminata*, some of which belong to *Alternaria*, *Colletotrichum*, *Diaporthe*, *Fusarium*, *Guignardia*, *Nigrospora*, *Paecilomyces*, *Penicillium*, *Pestalotiopsis*, *Phomopsis*, *Sporidesmium*, *Sordariomycete* and *Zythia* species (Ding *et al*., 2010). Preliminary screening of these fungal strains indicated that these endophytes can produce multi-kinds of metabolites including CPT (Yan *et al*., 2008). Kusari (2010) reported the occurrence of *Fusarium solani* (Mart.) Sacc., an endophyte from the bark of 'Happy tree' and identified its potential to produce CPT. Antimicrobial activities of these endophytes against pathogenic fungi such as *Rhizoctonia solani* Kuhn, *Gibberella fugikuroi* (Sawada) Wollenworth, *G. zeae* (Schwein.) Petch,, *Pyricularia grisea* (Cooke) Sacc., and *Fusarium oxysporum* f. sp. *vasinfectum* W.C. Snyder & H.N. Hansen, revealed the importance of these endophytes as novel bioactive compounds (Ding *et al*., 2010). Research achievements of the endophytic fungi isolated from anti cancer medicinal plants, and some of the isolates producing the same physiological active substances as product of the hosts are reviewed by several workers and emphasized the potential applications of the endophytic fungi (Zhou Chen *et al*., 2002). Further studies are required to ascertain the role of fungal species in the present study as pathogens of the host plant or endophytes that can help in producing CPT or exhibiting antimicrobial activities against pathogens.



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