

Date : 2008-08-25
Session : Symposium - Kashin Beck Disease
Time : 1100-1215
Room: 408

Abstract number : 17610

ANALYSIS OF ERGOSTEROL AND THE MAIN ALTERNARIA MYCOTOXINS IN CEREALS FROM ENDEMIC AND NON ENDEMIC KBD AREAS IN TAR

Georges LOGNAY¹, Quentin DENIS¹, Camille CHASSEUR², Françoise MATHIEU³

¹Gembloux Agricultural University, Gembloux (BELGIUM), ²Scientific Institute of Public Health, Section of Mycology, Brussels (BELGIUM), ³KBD Foundation asbl, Gent (BELGIUM)

Food contamination by moulds and their noxious mycotoxins is frequently reported in KBD aetiology. The present study was designed to validate Ergosterol and Alternaria mycotoxins methods of analysis and to apply them within KBD Foundation's programme. Extent of fungal contamination in cereal grains was evaluated by ergosterol (mould bioindicator) HPLC assay: linearity: 0-25µg/ml ($r^2 > 0.999$); LOQ=0.3µg/g; recoveries = 98.4±4.0%; repeatability (RSD=4.1%). Low ergosterol concentrations in Barleys from non endemic (1.2±1.1µg/g) and endemic (2.8±2.2µg/g) KBD areas indicated limited mould contamination; no difference could be made between KBD affected and non affected families. Since previous mycological surveys revealed the prevalence of Alternaria in endemic KBD area, the main A. mycotoxins (Altenuene, Altertoxin I, Alternariol and Alternariol mono-methyl ether) were searched by HPLC. The developed HPLC method showed satisfactory performances (LOQ=0.1µg/g, recoveries >85% at 0.25µg/g level, and linearity ($r^2 > 0.999$) over the range of 0.1 to 10µg/g). Among the 28 tested Barley samples, none of them revealed detectable amounts of the four mycotoxins. Additional T-2 toxin analyses were also all <LOD (25ng/g), nevertheless it cannot be denied that other non investigated mycotoxins could be present at low concentration. As a result of the study, the proposed analytical protocols showed good performances but did not allow to clearly distinguish Barley samples from KBD endemic and non endemic areas.