

# AIRBORNE moulds measured by quantitative PCR in relation to asthmatic symptoms in school pupils in Taiyuan, China

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**Background and Aims:** Indoor mould may influence children's respiratory health.

**Methods:** In this study, we used real-time quantitative PCR to measure fungal DNA in airborne dust collected by Petri-dishes during 7 days in 39 classrooms in 10 schools in Taiyuan city, Shanxi province, China. A questionnaire survey (90.2% response rate) was performed in 1993 pupils (average age 13y).

**Results:** Totally 29.8% had daytime attacks of breathlessness, 8.4% wheeze (last 12 months) and 39.3% respiratory infections (last 3 months). All classrooms had detectable mould (total mould) (median 626,000, range 1,840~2,410,000 cell equivalents (CE)/m<sup>2</sup>/day), 72% had mould genera *Aspergillus*/*Penicillium* (Asp/Pen) (median 5,410, range 820~85,700 CE/m<sup>2</sup>/day) and 23% with *Stachybotrys Chartarum* (median 7,790, range 3,230~22,400 CE/m<sup>2</sup>/day). The total mould was highly correlated with muramic acid (MuA) in the settled dust ( $P<0.01$ ). By hierarchical multiple logistic regression analyses, airborne total mould was positively associated with pupils' wheeze (odds ratio 1.48, 95% CI 1.03-2.12). MuA was negatively associated with pupils' daytime attacks of breathlessness and wheeze. No significant association was found for Asp/Pen or *S.Chartarum*.

**Conclusions:** Petri-dish method can be used to detect airborne fungal DNA. The correlation between airborne mould and microbial components in the settled dust suggested the complexity of indoor exposure to compounds of biological origin.