

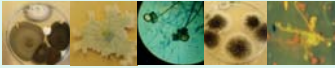
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CISBO

WP 1.1 – Microbiology

Comparison of sampling methods

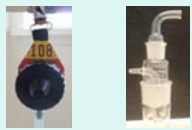
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Methods

Airborne dust

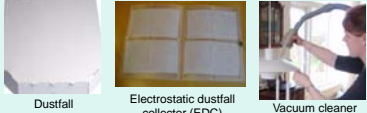


GSP filter sampler BioSampler Impinger

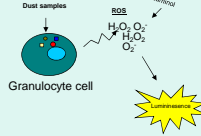
Analyses of dust samples

- Culturable fungi, bacteria and actinomycetes (*Agar plates*)
- Endotoxin (*LAL assay*)
- Total Inflammatory Potential (TIP) (*The granulocyte assay*)

Settled dust



Dustfall collector (DFC) Electrostatic dustfall collector (EDC) Vacuum cleaner

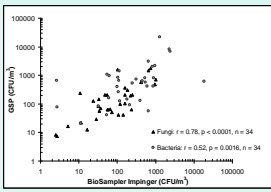


Granulocyte cell

Results Airborne dust

GSP filter sampler vs. BioSampler Impinger

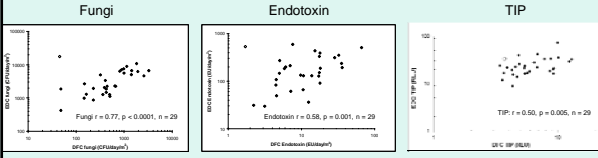
Microbial exposure	Unit per m ³	GSP n = 129		BioSampler Impinger n = 34	
		Median	Range	Median	Range
Fungi	CFU	127	bd - 3622	69	bd - 998
Bacteria	CFU	672	bd - 21946	279	bd - 18155
Actinomycetes	CFU	43	bd - 4141	18	bd - 171
Endotoxin	EU	1.2	0.08 - 8.3	0.39	bd - 3.4
TIP	RLU*	2.7	0.74 - 5.7	4.6	2.8 - 5.8



▲ Fungi: r = 0.78, p < 0.0001, n = 34
▲ Bacteria: r = 0.52, p = 0.0018, n = 34

Results EDC vs DFC: Settled dust

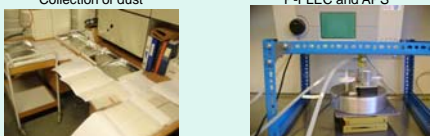
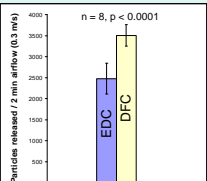
Microbial load	Unit per day per m ²	EDC n = 30		DFC n = 30	
		Median	Range	Median	Range
Fungi	CFU	2500	422 - 17644	472	45 - 3270
Endotoxin	EU	168	29.8 - 590	10.6	1.7 - 66
TIP	RLU*	21.8	8.8 - 72	5.6	3.4 - 13



Fungi: r = 0.77, p < 0.0001, n = 29
Endotoxin: r = 0.58, p = 0.001, n = 29
TIP: r = 0.50, p = 0.005, n = 29

Results Hypothesis: Particles are more easily released from the DFC- than EDC surface by air-currents

Collection of dust P-FLEC and APS

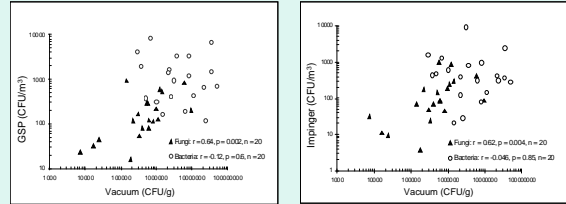



n = 8, p < 0.0001

Particles released / 2 min airflow (0.3 m/s)

Results Airborne vs. settled dust

Vacuum samples correlate to both GSP- and Impinger air samples for fungi but not bacteria



GSP (CFU/m³) vs Vacuum (CFU/g): Fungi: r = 0.66, p = 0.002, n = 20; Bacteria: r = -0.12, p = 0.05, n = 20
Impinger (CFU/m³) vs Vacuum (CFU/g): Fungi: r = 0.62, p = 0.004, n = 20; Bacteria: r = -0.046, p = 0.95, n = 20

