

Incorporating potential harm into risk characterisation of inhalable coal dust

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Introduction

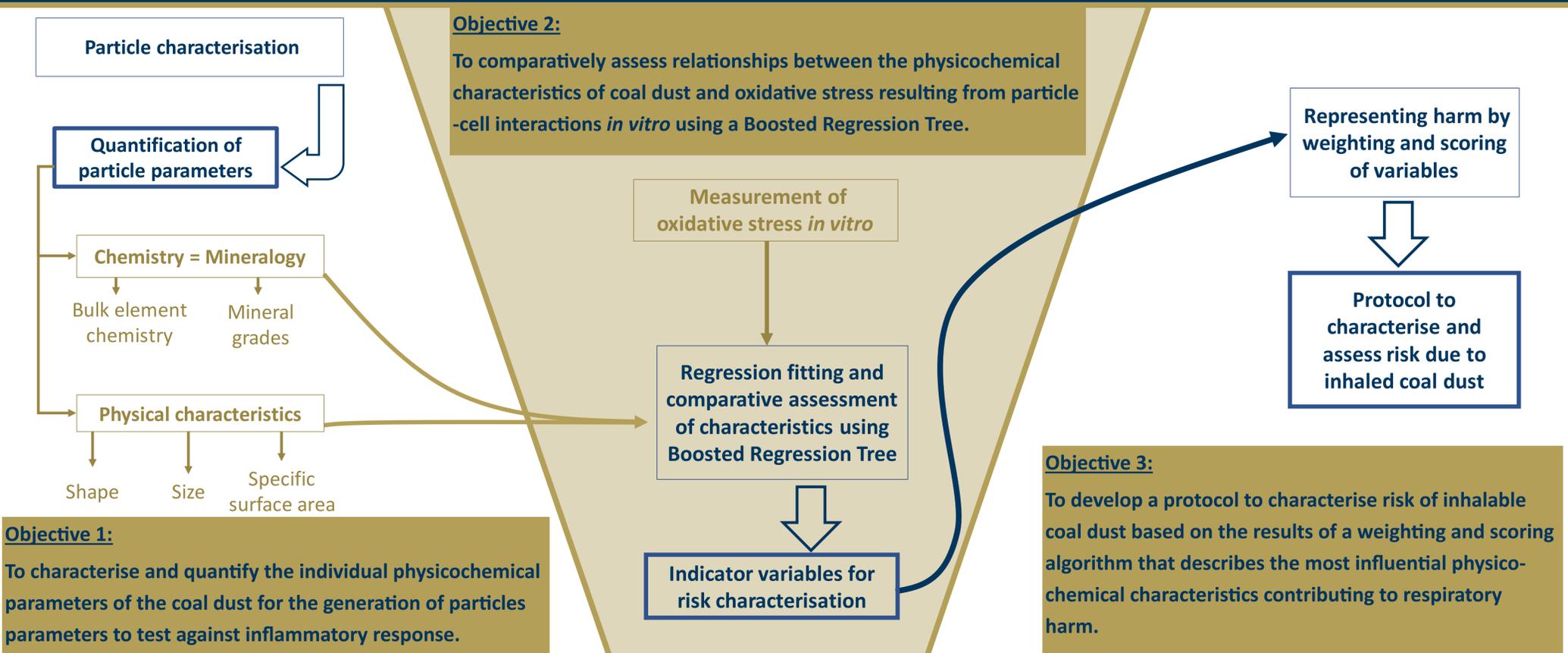


- Air pollution is increasingly acknowledged as a severe issue for the global environment¹
- The standard metric used to define guidelines for risk upon exposure is set as the exposure concentration ($\text{mg}\cdot\text{m}^{-3}$) of dust and assumes equal toxicity irrespective of the inherent properties of the dust²
- No threshold value of exposure exists where the negative health effects experienced are absent³
- Using exposure concentration as a surrogate for risk may underreport the toxicological effects of mixed dusts⁴

Aim

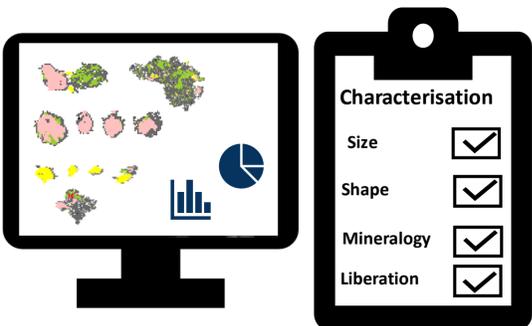
To develop a risk characterization protocol for inhalable coal dust that takes into account the most influential physicochemical characteristics of coal dust towards pulmonary toxicity

Scope and Objectives



Expected outputs

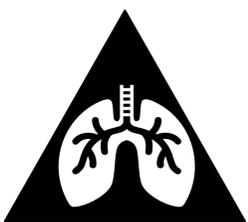
A set of particle characterisation tools developed for the individual particle analysis of mixed inhalable dusts.



Develop a rank of relative risk for various coals based on the potential harm attributed to the inherent properties of the inhalable coal dust.

Relative Risk

X ₁		
X ₂	X ₃	
	X ₄	X ₅



Generate a set of physicochemical particle characteristics that are influential to the cytotoxicity of lung cells.



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MINE DUST NETWORK