HYDROGEN CYANIDE (BLUEFUME) AS A MEBR ALTERNATIVE FOR STRUCTURAL FUMIGATION

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There are few alternatives remaining for structural fumigation after the withdrawal of methyl bromide. As a broad-spectrum insecticide, rodenticide and nematocide hydrogen cyanide (HCN) becomes one of the few perspective and readily available fumigation molecules. From 1887, HCN has been successfully used for control of parasites, public health, and mill and storage pests in USA, Europe and Asia. For many decades, in USA and UK HCN has been historically widely used for large scale quarantine port and ship fumigations in order to control pest rodents. In spite of a good potential, HCN revival - after the methyl bromide ban - has been delayed due to expiration of MRLs and absence of modern efficacy data, expressed as Ct products. However, in the last decade a new BLUEFUME (HCN) formulation, meeting all modern safety requirements, has been developed. New experimental data on BLUEFUME gas spatial distribution, temporal dynamics and its biological efficacy has been produced in a sufficient amount allowing its registration as biocide in European Union in 2017 (e.g. Product type (PT) 08 wood preservative, PT 14 rodenticide, PP 18 insecticide and acaricide). Currently laboratory and/or field data are available on various species of storage, seed, food and mill infesting pests (e.g. *Rhizopertha sp., Trogoderma* sp., *Ephestia sp., Tribolium sp.*). The experimental results show excellent BLUEFUME efficacy and extremely low Ct-products on all stadia of the tested pests; especially on eggs. Screening of *Tribolium* pest populations originating from the Czech mills revealed no resistance to HCN. Penetration studies of HCN into 20 types of wood and into garlic seedlings have been conducted. Consequently biological efficacy of HCN on wood infesting insects (*Hylotrupes sp., Anoplohora sp.*) as well as on wood (*Bursaphelenchus* xylophilus) and garlic (*Ditylenchus dipsaci)* infesting nematodes was estimated. BLUEFUME showed good efficacy on public health pests (e.g. Blattella sp., Cimex sp.) and on rodents (*Mus sp.; Rattus sp.*). Field test proved the ability of BLUEFUME to control poultry mites (*Dermanyssus gallinae*).