

ETHANEDINITRILE: A POTENTIAL METHYL BROMIDE ALTERNATIVE TO CONTROL QUARANTINE INSECTS INFESTING LOGS AND TIMBER IN NEW ZEALAND

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Export of timber products from New Zealand is a major and growing sector of the economy and the search for an effective ozone-safe fumigant is needed to support this trade. Ethanedinitrile (EDN Fumigas®; C₂N₂) is a colourless, pungent gas that has been proposed as an alternative to replace methyl bromide for phytosanitary treatment of logs, sawn timber and wood packaging materials. EDN has been recently registered in Australia for soil and wood treatments and is now available for testing in New Zealand. To be considered as a viable alternative fumigant to methyl bromide, fundamental aspects of the efficacy of EDN, including its toxicity to key quarantine insect pests and its sorption characteristics, need to be defined. In this study we evaluated (1) the toxicity of EDN for the control of adult burnt pine longhorn beetle (*Arhopalus fesus*), a quarantine insect found in association with pine logs and sawn timber exports in New Zealand, and (2) a range of factors which might influence EDN sorption by logs and sawn timber. Results indicate that EDN is a promising phytosanitary treatment alternative to methyl bromide for quarantine insect pests associated with logs and sawn timber. It is highly toxic to burnt pine longhorn adults (LD₉₉= 12.6 g/m³) and its sorption by logs and sawn timber is high but acceptable. Future work will include measuring EDN toxicity to other *A. fesus* life stages and key insect forest pests and additional fumigant characteristics including penetration and desorption.