

# PERFORMANCE OF HEDGES AND THEIR CHARACTERISTICS FOR BUFFERING NOISE IN URBAN RESIDENTIAL AREAS

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## ABSTRACT

*Many environmental designers are currently searching for better solution on reducing noise frequency levels in housing estates. Planting hedges as buffer is commonly done but the question is whether they serve the right function and purpose. In order to determine the plant performance, a sound level meter was used to detect noise reduction from commonly planted hedges in residential areas of Putrajaya and Kuala Lumpur. The source of sound for measurement was from a grass trimmer that is commonly heard in residential areas. This paper highlights the performance of selected local plants in absorbing the noise frequency. A statistical analysis showed that hedges such as Baphia nitida and Bixa orellana of sufficient heights and length are promising and have good potential in controlling sound levels. Ixora 'sunkist' with small leaves and with more layers of planting also provides similar result. Until a controlled experimental study is carried out, this initial finding would be useful in plant selection for buffering noise in local landscape projects.*

**Keywords:** *Sound Level, Buffer, Noise Reduction, Hedges, Plant Characteristics*

## 1. INTRODUCTION

In Malaysia, noise from continuous usage of a grass trimmer in residential areas and parks has now become a public concern. Recently, some stakeholders, professionals and general public in a Workshop on Public Parks organized by the National Landscape Department in Kuala Lumpur have identified noise from the grass trimmer as one of the serious environmental pollutants. This shows that consideration of noise and sound elements in urban areas is absolutely important in our daily life today.

Like air pollution, the effect of noise from vehicles has been noted to increase to the point of threatening happiness and health. Vern Knudsen (1967) said that noise is one of the chief drawbacks to the enjoyment of modern urban living, and Abdullah (2006) emphasized that noise pollution absolutely reduces the quality and productivity of human life, causes stress and tension as well as triggers social problem. Noise has an important environmental impact with short and long-range effects on human communities and on wildlife (Carlos et al., 1957; Marquis-Favre et al., 2005).

The design of a comfortable environment through landscaping has been tremendously improved in recent years particularly in urban areas. Majority of urban residential areas have been planted with shrubs and hedges to be marked as a boundary as well as to reduce noise level from the nearby traffic. Robinette (1972) found that plants are effective in screening sound levels sensitive to human ears, while variability of a sound level contributes to its annoyance values (Latshaw, 1973).

Many earlier studies have only examined tree belts of particular species (Embleton, 1963; Kraght, 1979 and 1981) but failed to discuss noise reduction effect in relation to branching, foliage, and height. Heimann (2003)

