

Title : Comparing concentration of nitrogen dioxide (NO₂) in Chiang Mai University using the passive sampling technique in 2024-2025

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One of the major pollutants that affects both human and environmental health is nitrogen dioxide (NO₂). It originates from automobiles and factories, particularly in metropolitan areas. Therefore, this study aims to evaluate and compare the levels of NO₂ in different areas around Chiang Mai University, including two roadside locations (RS1 and RS2), one parking lot (PL), and one garden (GD). In this study GD was used as the background site because it is far from traffic activity. NO₂ sampling were set up simultaneously three times at each site using the passive sampling technique. Different NO₂ levels were found; RS2 has the highest concentration value, followed by RS1 because these two places have quite a lot of traffic, followed by GD which normally has no cars at all, but the value is higher than PL because it happened to be during a graduation ceremony, causing heavy traffic, and the lowest is at PL which is normally close to the PL, but during the graduation ceremony, the authorities closed the road and did not allow parking in that area, therefore the concentration value is low. And on 16 January 2025, we collected samples, we found that on 16 January 2025 had the highest concentration because it was during graduation season. In 9 January 2025 was the second time because it was during the peak of tourist season and other activities. On 19 December 2024 had the lowest concentration because there were quite not activities. In summary, areas near roads tend to have higher nitrogen dioxide concentrations compared to other locations. Non-background areas, which are unaffected by traffic, show lower levels, while background areas, despite being farther from traffic, may still have higher concentrations than PL due to increased vehicle activity during certain events.

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