

ABSTRACT

Bioaerosol is microorganisms with their size of 0,02-100 μm in the air. Humans do a lot of activities in the room, so the indoor air quality is important factor that must be considered. Bioaerosol formed of bacteria, viruses, fungi and allergens such as dust parasites that can be sourced from dead carcasses and dust mites. The impact on health mainly in the form of irritation, infection, and allergens. This study aims to identify and determine the relationship of non-biological parameters (RH, T, CO₂, PM_{2.5}) to biological parameter in the form of bacterial colony forming unit per volume (CFU/m³). Location where the air sampled was taken in three places of Gedung Deli, Universitas Telkom, Bandung. Biological sampling mechanism at each location was carried out in parallel with non-biological parameters in parallel during campus operational hours, each for two minutes with three repetitions using the Standard SKC BioStage 400 holes with sodium agar Trypticase Soy Agar on a petri dish. Then the sample was identified and counted for total colonies using colony counter. These bacteria were identified by enrichment media using Trypticase Soy Broth and Blood Agar 5%, then gram checking was performed, after which differential media were used Manitol Salt Agar and MacConkey Agar. The linear regression model shows that there were good correlations with RH, T, and CO₂ parameters with bioaerosol concentration. This is due to the fact that most of the bacteria in the air attach to or attach to the aerosols produced by the evaporation process. Weak correlations at PM_{2.5} can be caused by bacteria in the air standing as aggregates or sticking to non-biological particles, so the size is > 2.5 μm . The mean concentration of bioaerosol in rooms 1, 2 and 3 was 5583 CFU / m³, 1890 CFU / m³, and 1278 CFU / m³. This does not meet the quality requirements for air biology in indoor rooms.

Keywords: *Bioaerosol, indoor air quality, airborne bacteria*