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Hot-spot and cluster analysis on legal and illegal dumping sites as the contributors of leptospirosis in a flood hazard area in Pahang, Malaysia (Article)

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Abstract

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Background: Leptospirosis is one of the zoonotic diseases which pose major public health issues worldwide. The spread of leptospirosis depends on the climate conditions as well as environmental conditions. **Methods:** The cases of leptospirosis were determined by using database obtained from Ministry of Health, Malaysia. Case cluster and hot spot analysis within Geographical Information System (GIS) were done using ArcGIS version 9.3. Level of significance was set at $\alpha = 0.05$. **Results:** Most of the cases were at the centre Pahang located along the flood hazard stream. Cluster analysis indicated that cases were mostly clustered near illegal and legal dumping sites. The outliers were Jerantut, Maran, Pekan, and Rompin in both maps ($p < 0.05$). The hot spot analysis obtained an obvious trend in the legal dumping compared to the illegal dumping. The hot spot area was found in the middle of Pahang such as in Jerantut, Temerloh, Maran, Pekan, and Rompin. **Conclusions** Increasing flood risk, poor sanitation and abundance of rats are conditions that trigger leptospirosis outbreaks. Interventions are therefore needed, targeting at environmental sources of transmission namely open legal and illegal dumping sites as well as flooding in flood hazard areas. A refined waste management system is needed to control the spread of the disease. © 2018, Asian Journal of Agriculture and Biology.

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