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Possible Impacts of Nitrate Pollution in Groundwater on Oesophagus and Stomach Cancer in Thenmaradchi Division in the Jaffna Peninsula

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This research paper aims to present the possible impacts of Nitrate pollution in groundwater on human health in Thenmaradchi division in the Jaffna peninsula. According to the Cancer Unit of Teaching hospital data, highly affected villages in Thenmaradchi were identified and samples were collected in the cancer patient's wells and nearby wells in these villages. Samples were drawn from seventeen cancer patient's wells and nine nearby wells. Nitrate analysis was performed by HACH Dr/2000 spectrophotometer using Cadmium Reduction method. Three analyses were performed for particular one sample and the average reading was taken. Risk factor was calculated by the ratio between the average nitrate consumption per Kilogram of body weight per day of cancer patient's family and non cancer patient's family. According to the WHO standard 50ppm NO_3^- is border level. But the WHO standards of that level, only depends on Methamoglomia disease. There is no identified clear red line nitrate concentration according to the cancer disease in drinking water. However, higher nitrate concentration in drinking water potentially highly hazardous to human health. That could be converted into carcinogenic substances such as nitrosamines within the body. But in Thenmaradchi area, Nitrate concentrations in randomly selected Oesophagus, Stomach cancer patient's and nearby groundwater wells are lower than the WHO recommended level. However, risk factor related to nitrate consumption was 1.5. So we can suggest nitrate concentration in groundwater may be playing a role on Oesophagus and stomach cancer in Thenmaradchi area.

Keywords: Cancer, Groundwater, Nitrate, Jaffna peninsula, risk factor.

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