

Working for Mankind for a Shared Community by Promoting Environmental Safety

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ABSTRACT

Environmental studies and aspects are very much important as the environment is shared. The environment is affecting globally thus to study and then to work on green chemical approach is important nowadays. The direct effect of environmental changes on the health is very important and always the priority of researchers to explore the causes. In this piece of work different metal exposure to human and their direct effect on the human health was evaluated and discussed. For that purpose, number of human related samples along with questioner analysis were done. The analysis was performed in the water, soil and human blood. The results were justified using different advance statistical techniques using which the exposure was justified. The results showed that the exposure of Pb, Mn cause neurotoxicity in the population. Whereas, fluoride and arsenic contamination cause the dental florisis, melanosis, dermatitis, and keratosis. The chromium has carcinogenic effects on the humans. The results were evaluated using Piper plot, PCA, and other statistical operations.

Keywords: Environment, human health, toxicity, water, soil.

INTRODUCTION

Safe drinking water is a basic human right to every citizen. More people each year die due to unhealthy water which is not safe for human use according to WHO. In drinking water heavy metal contamination is common in most of the areas which cause contamination by anthropogenic and natural sources (Chanpiwat *et al.*, 2010; Demirak *et al.*, 2006; Rasool *et al.*, 2010). Heavy metal contamination is hazardous to human consumption. This metal contamination effects the surface and ground water (Krishna *et al.*, 2009). The most toxic and carcinogenic metal is Pb which can cause chronic health issues including irritability, blood pressure, cancer, nerve damage, kidney damage, headache, gliomas, lung cancer, stomach irritability and abdominal pain (Dieter *et al.*, 2005; Alkarkhi *et al.*, 2008; Knight *et al.*, 1997; Loubieres *et al.*, 1999; Krishna *et al.*, 2009; Pekey *et al.*, 2004; Ouyang *et al.*, 2002; Strachan., 2010; Wasserman *et al.*, 2006; Robert *et al.*, 2003; Steenland *et al.*, 2000; Calne, 1997, Jarup, 2003). The aim of the current study is to evaluate the water, and soil health of the areas which are highly expose to metal contaminated. Moreover, blood analysis and human awareness about this contamination was also under focus of the study.

MATERIALS AND METHODS

Sampling was performed using random sampling method. The physicochemical parameters were tested using standard STM protocols. Different health parameters were calculated using reported methods. Analysis were performed using ICP-MS, ion selective electrodes, flame photometer, pH meter, conductometer, spectrophotometer.

RESULTS AND DISCUSSION

The water distribution can be observed from the following Figure 1.

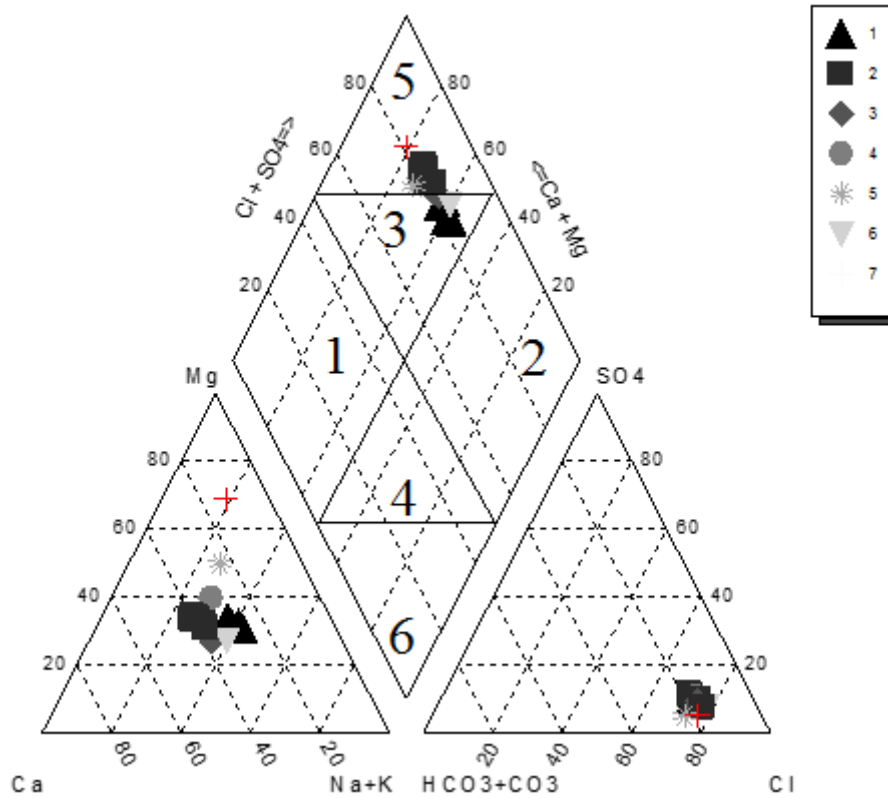


Figure 1. Piper plot giving water distribution according to their different types.

Water distribution on the basis of different parameters can be observed from given PCA plots.

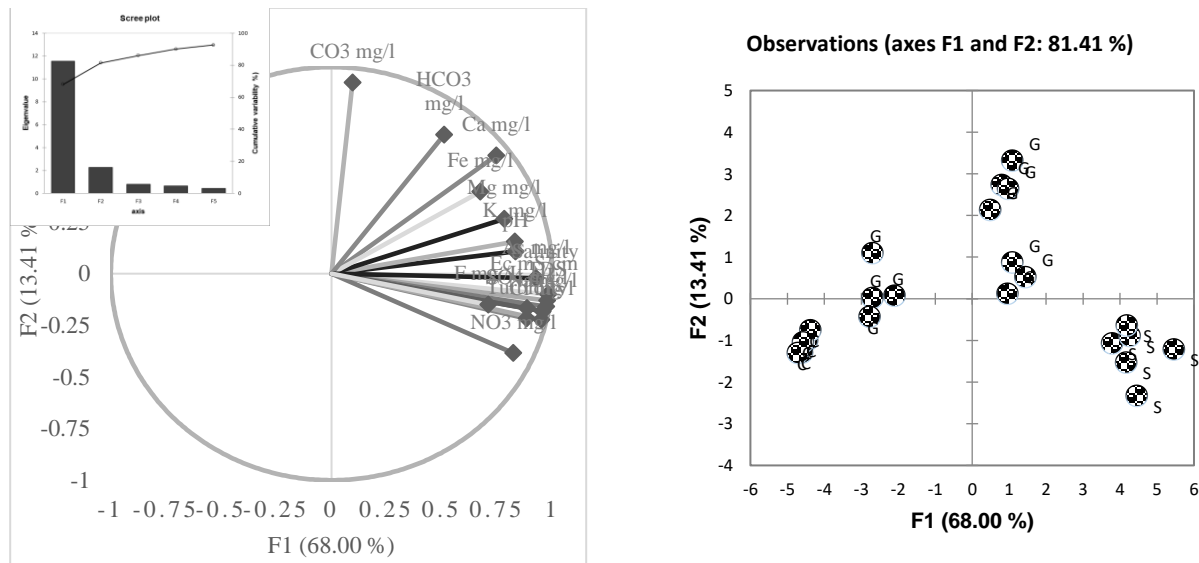


Figure 2. PCA plots (a) As and F Score plot for different water parameters. (b) showing clustering and distribution.

CONCLUSION

It is concluded that the water expose to heavy metal contamination is not safe for the human consumption and people taking such water are at high health risk.

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