

A Study on Methods to Improve Water Quality with a Reference of Bokashi Ball Treatment

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ABSTRACT

Water is an essential part of our lives. Nobody can survive for a longer time without water. The quality of water is also important as contaminated water can rise to many diseases among living organisms. Hence, various methods are used in order to improve the quality of water. In some cases, the effective micro-organism technology is used to purify the water. This technology is supposed to be environment friendly. This method has been used to improve the water quality of various rivers.

It is observed that with the increase in population, the level of quality of water is decreasing year by year. Therefore, there is an urgent need to improve the quality of water. In this paper, we highlight Bokashi ball treatment for improving the quality of water.

KEYWORDS:

Bokashi ball, Water, Quality, Improve



INTRODUCTION

Bokashi balls can be used to clean the water tanks. These balls are easier to use and environment friendly. These balls have the capacity to absorb harmful particles from water. These balls are helpful in the organism growth.

These can be placed in garden as well which can be beneficial for the growth of plants. These balls can also be placed in lake or river in order to improve the water quality. It is observed that the places near the any river or lake where there are many factories and industries, the water quality of that region is found to be bad due to mixing of waste particles of nearest factories and industries.

The water bodies like fishes, ducks or other organisms have to suffer a lot due to contaminated water. At these kinds of places, the Bokashi balls can be used to improve the water quality.

We tried to improve the water quality of a pond. From a pond, a slit mixed with clay was taken. 500 gram of Bokashi was used for the clay of quantity 5 kilogram. Bokashi are special kind of vaccinated micro-organisms. Then, molasses were added in Bokashi.

After that, water was put in 100 ml fluid taken from micro-organisms. Then, for a week, this mixture was placed in warm place then was placed in dark place in order to reproduce in micro-organisms.



Then, these Bokashi balls are allowed to put in water and a change in water quality was observed. Special bacteria are present in Bokashi balls which work as filter to purify the water. By using the method of Bokashi ball, the smell from the water places like pond or river can be reduced by covering the food waste through the micro-organisms.

A number of lactic and bacteria particles are used in effective micro-organic composition. These micro-organisms have the capability of restoring their potential of reproducing. This technology has a great impact on the environment. This method can also be used in several sectors like farming, agriculture and the management of waste products etc.

The purity of water places like pond, lake or rivers can be maintained and further improved with the help of Bokashi Ball treatment. The biggest advantage of using Bokashi ball is that these balls has the potential to pause the algae growth. These can also be used to decompose the sludge thus removing the bad smell odors of ammonia and methane.

By using Bokashi balls, the pH level of water can also be improved by controlling the dissolved oxygen and the demand of chemical oxygen. Government is also taking appropriate actions to control the water pollution but it is not single handily done by the government authorities as all the people have to make efforts from themselves if they really want



to get the better quality of water. Every individual should be aware of not contaminating the water. Thus, the quality of water can be maintained.

USAGE OF BOKASHI BALL TREATMENT FOR IMPROVING WATER QUALITY

In Bokashi ball treatment, the water is made purify by restoring the sludge and reduction of nutrients. This treatment has the capability of changing the dynamics of living organisms residing in water. Hence, the growth of weed is decreased as it becomes less nutrient.

The microbial activities are restored in water and nutrients and other organic particles are consumed in the water. Hence, the sludge gets activated in the water resulting in the decrease in sludge quantity at the bottom of the water place.

Bokashi balls are like tennis ball in size and are designed for the treatment for a longer period. They are placed in the sludge and their impact is supposed to be much higher in the bottom parts of the water-bodies.

The following figures show the quality of water before and after implementing the water improving treatment. Figure 1 shows the bad quality of water before using the water improving treatment and figure 2 shows the improved quality of water after the implementation of water improving treatment.



Figure 1: Before Treatment



Figure 2: After Treatment

An absolute change in the value of dissolved oxygen and pH value of the water was observed after using the Bokashi ball treatment.

The following figure shows the concentration of dissolved oxygen after using Bokashi ball treatment.

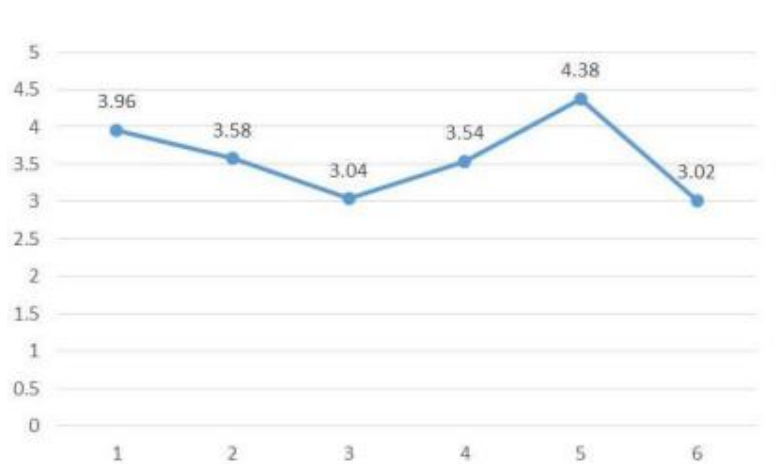


Figure 3: Change in the level of Dissolved Oxygen of water

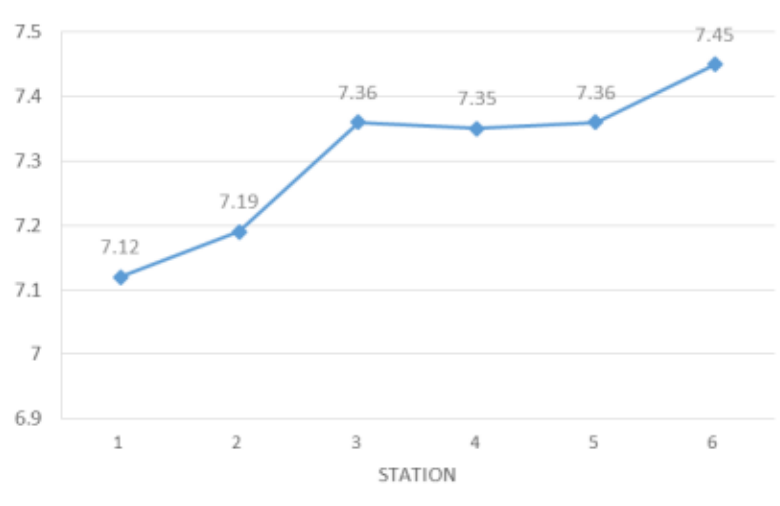


Figure 4: Change in pH level of water

Figure 4 shows the change in pH level of water on using Bokashi ball treatment.



DISCUSSION

Water resources are crucial to human health and the natural environment, and play a key role in economic growth and development. Satisfying the increased demand for water has become the major objective of water resources management today. Globally, the demand of fresh water is on rise and its sufficient supply is considered vital as water quality is mainly decreasing due to pollution.

Degradation of water quality creates water scarcity and limits its availability for human use and ecosystem and thereby impacts the optimum management of water resources. In this context, the preservation of satisfactory water quality in rivers, lakes, reservoirs, etc is necessary to protect public health and ecosystems.

To this end, water authorities have to satisfy the increased industrial, domestic, and agricultural demand, as well as the requirements for environmental protection and ecological improvement. The deteriorating water quality of most rivers will cause serious environmental problems which can impede the regional sustainable development.

The biological treatment, especially the use of microorganisms to improve polluted water quality is effective and widespread due to low capital and cost compared to chemical treatments. Therefore, in recent years there has



been a growing interest in the use of biological purification techniques for water as the best alternative option environmentally and economically.

The Bokashi ball technology is a low cost alternative to improve water quality and has great potential to improve chemical and physical properties of the water. Through this technology, the rehabilitation of polluted and degraded water bodies which restore aquatic habitats and ecosystems will certainly lead to sustainable water resource management in the region concerned.

Besides, the potential of Bokashi ball technology in creating sustainable practices for agriculture, animal husbandry, nature farming, environmental stewardship, construction, human health and hygiene, industrial, and community activities is well recognized.

Using the Bokashi ball technology, the water of polluted water sources can be improved and converts into a water supply source. There are growing evidences that with the development of society and economy, most rivers become polluted to a various extent and affected optimum management of water resources.

In this situation the Bokashi ball technology will help managers and policy makers to make decisions about water improvement measures and do some adjustments at water allocations between different users. In addition, using Bokashi ball - based water quality improvement



techniques, new and alternative sources of water supply (e.g. waste water reuse and water recycling and use of marginal quality water) can be developed.

So the optimal distribution of water quality and quantity will help in meeting the increasing domestic, industrial and agricultural demand and ensure sustainability of water resource in India. This will not only fulfill the current increasing freshwater demand but also will ensure long term availability of freshwater resources for the future.

Nowadays with growing scarcity and quality deterioration of water resources, a comprehensive understanding of multi-purpose nature of river basins and their sustainable management has become crucial. The water resource sustainability modeling has received considerable attention in recent times and some studies highlighted the specific sustainability criteria that are incorporated into a long term optimization model of river basin.

CONCLUSION

Bokashi ball technology adopted locally are emerging as one of the environmental solutions towards reducing water pollutants and thus improving water quality in our rivers and drains. The results of the projects nationwide have demonstrated the effectiveness of Bokashi ball technology

in the river protection, and will be continually used as a basis for the extension of Bokashi ball technology in India in helping to recover, reinforce and sustain our river nature.

Bokashi ball is easy and convenient for use, safe, unharmed, low cost and economically effective and this has increases the effectiveness of application of this technology. Moreover, the regular monitoring of water pollution level of river basin, appropriate purification treatment and community participation in water resources management will certainly help managers in taking informed decisions for water resources sustainability and management.

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