

# Water quality assessment of gadisar lake: A comprehensive research

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**Abstract:** Water is most essential element of life. All the organisms has need a water for their survival. All the organism's dependent on water directly or indirectly. The basic measurement of a water body is the water quality which is estimated by secchi disc transparency (SDT). Transparency is inversely proportional to the turbidity of water and directly proportional to the amount of suspended matters. Result showed that lake is oligotrophic.

**Keywords:** Water, organisms, secchi disc transparency, turbidity

## INTRODUCTION:

### Secchi disc:

It was discovered by Pietro Angelo secchi for studying the transparency of aquatic bodies such as ponds, lakes, river etc. The secchi disc transparency value is used to determine the trophic state of the lake. It is a simple standard tool which measure transparency of water. It is 20 cm in diameter with black and white quadrates on upper surface and a hook in the center.



**Fig.1: Secchi disc.**

### Study area:

Gadisar lake which is also called as Gadaria lake is located in the Jaisalmer district of Indian state Rajasthan. This is an artificial lake 26.9N to 70.92 E. It is located 1.5 km from Jaisalmer fort.

### Methodology:

In this study the data collects on the basis of secchi disc transparency (SDT). The water temperature (ranges between), water level and odour of water of lake were also observed. these are following steps to collect data from lakes: Firstly, slowly lower the secchi disc into the water until it is no longer visible and note the depth. Then, slowly raise the disc until it just becomes visible and record their depth. Average of step A and step B to get the secchi disc transparency (SDT).

**Statistical analysis:** Secchi disc depth (sdd):  $A+B/2$  Where, A= depth at which secchi disc disappears= depth at which secchi disc reappears. Euphorbic limit (cm): =2.5. Sdd and vertical attenuation coefficient =  $1.9/sdd$ .

**Result:** Secchi disc depth (sdd):  $15+3/2 = 9$  cm Euphorbic limit =  $2.5 \times 9 = 22.5$  cm. Hence lake is showing Oligotrophic.

**Table: 1. Secchi disc transparency showing lake trophic state:**

Sr. No.	Lake trophic state	Secchi disc transparency (Euphorbic limit)
1.	Oligotrophic	$>4$
2.	Mesotrophic	2-4
3.	Eutrophic	0.5-2
4.	Hypereutrophic	$<0.5$

**Fig.2: Secchi disc data collection at gadisar lake.****Acknowledgement**

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