



**GOVT. NAVEEN COLLEGE BORI, DIST. DURG  
(C.G.)**

**3.3.2**

- 1) List of publications**
- 2) Copy of paper published**

**Govt. Naveen College Bori, Dist. Durg (C.G.)**

**List of publications of faculties**

Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number
Physico-Chemical characterization of Anabaena spp. In five district of Chhattisgarh state, India.	S.D. Sharma, P. Jain	Botany	Int. J. Adv. Res. Biol. Sci 3 (4), 54-57	2016	2348-8069
Ethnobotanical survey of five villages of Durg District of Chhattisgarh (India).	S.D. Sharma, K. Sahu, G.K. Chandrol, P.K. Jain, V. Sharma	Botany	Int. J. Adv. Res. Biol. Sci. 3 (10), 104-110.	2016	2348-8069
Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number
Cyanobacterial species Biodiversity in Mahasamund district of Chhattisgarh region, India	SD Sharma, K. Sahu and P.K. Jain	Botany	World News of Natural Sciences 7, 1-15	2017	EISSN 2543-5426
Defluoridation of Drinking Water using Calcium Modified Chitosan	Meena Chakraborty	Chemistry	Asian Journal of Chemistry	2017	0970-7077
Spectrophotometric method vs ion selective electrode for field determination of fluoride in water and complex samples	Meena Chakraborty	Chemistry	Research Journal of Chemical sciences	2017	2231-606X
Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number
Distribution pattern of Aulosira spp. In five District of Chhattisgarh on the basis of Physico-Chemical Characterization	SD Sharma	Botany	I.J.C.R.T. 6 (1), 439-442	2018	2320-2882
Cleanest Greenest Solution for Maintaining Indoor Air Quality in Urban Areas: Plants	SD Sharma, P.K. Jain and V. Sharma	Botany	IJTSRD 2 (2), 1442-1450	2018	2456-6470
High Fluoride Concentration in Ground Water in Parts of Chhattisgarh – A review	Meena Chakraborty	Chemistry	International Journal of Advanced in Management, Technology and Engineering Sciences	2018	22497455
Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number

  
**Principal**  
**Govt. Naveen College Bori**  
**Dist. Durg (C.G.)**

Importance of non- timber forest products for livelihood of tribal's in bastar region of Chhattisgarh: A review	Sangita Devi Sharma and Kaushilya Sahu	Botany	International Journal of Agriculture Extension and Social Development Vol. 2, Issue 1, Part A	2019	E-ISSN: 2618-0731 P-ISSN: 2618-0723
Cyanobacterial Strains Recorded from Rice Field Soils of Five Tahsil of Gariyabandh District of Chhattisgarh in Relation to Soil pH, Soil Type and EC Value	S.D. Sharma	Botany	IJRASET Volume 7 Issue IV, 810-818	2019	ISSN: 2321-9653
Adsorption of toxic metal pollutants from aquatic environment by <i>Tinospora Cordifolia</i> – A review	Meena Chakraborty	Chemistry	International Journal of Management, Technology and Engineering		2249-7455
Title of paper	Name of the author/s	Department of the teacher	Name of journal	Year of publication	ISSN number
Challenges & Opportunities for local retailers in perspective of the presence of Big box retailers: A Case study of Shreeji Super Market in DurgBhilai Chhattisgarh	Samir Jaiswal , Dr. Hansa Shukla	Commerce	Sustainable Humansphere	Feb-20	ISSN: 1880 - 6503
Retailing strategies practiced by Super Bazaar in the era of Cut throat competition with Big box retailers: A Case Study of Rajesh Super Bazaar of Bhilai Chhattisgarh	Samir Jaiswal , Dr. Hansa Shukla	Commerce	Parishodh Journal	Mar-20	ISSN NO:2347-6648
Biodiversity of Schizothrix (Kurtz.) in rice field soils of Chhattisgarh State.	S. D. Sharma and M.L. Naik	Botany	IJCRT   Volume 8, Issue 6 , 198-202	Jun-20	ISSN: 2320-28820

  
 Principal  
 Govt. Neveen College Bori  
 Dist. Durg (C.G.)



## Physico-Chemical characterization of *Anabaena* spp. in five district of Chhattisgarh state, India.

Dr. Sangita Devi Sharma\* and Pankaj Jain

Naveen Govt. College, Bori, Durg, Chhattisgarh, India

\*Corresponding author: [sangeetadevisharma2206@gmail.com](mailto:sangeetadevisharma2206@gmail.com)

### Abstract

Physico-chemical characterization of *Anabaena* spp. has been studied in 192 rice field soil samples collected from five district of Chhattisgarh and influence of soil type; pH and conductivity were correlated on their population. At different locations and seasons the pH of the soil varies from  $4.08 \pm 0.20$  to  $8.05 \pm 0.305$ . Conductivity varies from  $0.036 \pm 0.10$  to  $6.71 \pm 0.152$ . Altogether 14 species belonging to *Anabaena* genus were obtained and characterized. Factors in the soil, such as its texture, its ability to retain water, and the amount of organic matter contained in it, also affect by the amount of pesticide that will leave the area. The present study indicates that the soil of the rice fields of all the studied area are sufficiently nourished with nitrogenous fertilizers which is not much helpful in growth of *Anabaena* species. Lesser nitrogenous fertilizer application will be beneficial to the growth of the genus.

**Keywords:** Cyanobacteria, Rice fields, Abundance, Environmental variables and Agrochemicals.

### Introduction

Cyanobacteria are extraordinarily diverse group of Gram-negative, oxygenic photosynthetic prokaryotes that are distributed in all possible biotopes of the world. Nitrogen fixing cyanobacteria are unique as they are able to assimilate both carbon and nitrogen. The key enzyme nitrogenase involved closely to fix atmospheric nitrogen. Algalization of soil with living di-nitrogen fixing cyanobacteria has become a common practice in tropical countries for many years. Various workers have studied the cyanobacteria flora of rice fields of our country (Choudhury and Kennedy 2005, Bhalla et al. 2006, Rai 2006, Nayak and Prasanna 2007, Digambar Rao et al. 2008, and Prasanna et al. 2009) and few attempts have also been carried to explore their diversity in the state of Chhattisgarh (Sharma and Nayak, 1996 & 1998, Shrivastav et al., 2009, Bajpai, 2013). Nevertheless, studies on cyanobacteria from the rice fields of this part of the state still remain largely unexplored.

Therefore, the objectives of the present investigation were (i) Collection and identification of *Anabaena* species from 5 district rice fields of Chhattisgarh, (ii) Study of distribution pattern of *Anabaena* spp. in different locations, (iii) Study of physico-chemical properties of rice field soils and correlating to different species of *Anabaena* (iv) The environmental impact of agrochemicals is on distribution of *Anabaena* species.

### Materials and Methods

#### A. Collection and identification of samples:

Samples were collected randomly from 192 different sites of following 5 district of Chhattisgarh:

- Baloda Bazar-Bhatapara district (site-1)
- Dhamtari district (Site-2)
- Gariaaban district (Site-3)
- Mahasamund district (Site-4)
- Raipur district (site-5)





## Ethnobotanical survey of five villages of Durg District of Chhattisgarh, (India)

Dr. Sangita Devi Sharma<sup>1</sup>, Dr. Kaushilya Sahu<sup>2</sup>, Dr. Gunwant Kumar Chandrol<sup>3</sup>, Pankaj Kumar Jain<sup>4</sup> and Vaidehi Sharma<sup>5</sup>

<sup>1</sup> Department of Botany, Govt. College, Bori Durg

<sup>2</sup> Department of Botany, Govt. College, Gobra Navapara, Raipur

<sup>3,26</sup> Department of Botany, Kalyan P.G. College, Bhilai

<sup>5</sup> Department of Geography, Govt. College Bori Durg

\*Corresponding author: [sangeetadevisharma2206@gmail.com](mailto:sangeetadevisharma2206@gmail.com)

### Abstract

Durg district is rich in biodiversity of medicinal plants. The forest area is about 8.95% of the total area of Chhattisgarh. 81 villages are found in Durg district. Peoples of these rural areas are used medicinal plants by traditional knowledge. The aim of this present study was to create awareness about this medicinal wealth of their area as well as knowledge about to conserve these natural resources is also very important. If all the people know about our natural resources & its important in our daily life by training or another sources than save it for future. If one species save per people by conserve it for value addition than disease free nature obtained. During present study 80 plants species was obtained which were used by tribal vaidyas to treat various ailments. These medicinal plants belong to 44 families. The various plant part used included whole plants, leaves, stems, roots, tuber, barks, flower, fruits, and seeds. Traditional and ethnic knowledge gathered from such study has played most significant role in the discovery of novel product as well as newer ideas about conservation of natural resources.

**Keywords:** Medicinal Plant, Traditional Knowledge, parts used, conservation.

### Introduction

The herbal medicine though slows in curing, but perfectly rootout the diseases, that's why the traditional medicine has attracted the main focus of researchers in India. All over the world around 80% of the peoples utilizing about 10,000 plant species as herbal medicines for treatment of various disorders [De, 1997]. Traditional medicinal practioners known as vaidayraj from the primary health care provider in rural area of Drug district. It is extremely important to save this traditional knowledge of biological heritage and explore new resources. The district has rich biodiversity still in the natural form. The climatic

conditions of this area support to the survival of fern and magnificent nature.

Organization like, Botanical Survey of India (BSI), Indian Council of Medical Research (ICMR), New Delhi, Forest Research Institute (FRI), Dehradun Calcutta, Central Institute of Medicinal and Aromatic Plants (CIMAP), Luck now have become actively engaged in gathering information of medicinal plants from rural tribal's to get ample benefits from the herbal medicine. A large number of studies have been conducted with respect to medicinal plants and their



# Challenges & Opportunities for local retailers in perspective of the presence of Big box retailers: A Case study of Shreeji Super Market in DurgBhilai Chhattisgarh

1 Samir Jaiswal, 2 Dr. Hansa Shukla

1 Research Scholar, Research Centre: Kalyan PG Mahavidyalaya Bhilai Nagar, (Pt. Ravi Shankar Shukla University Raipur)

2 Principal, Swami Swaroopan and Saraswati Mahavidyalaya, Bhilai C.G

**Abstract**—Durg-Bhilai the city of aspirations, popularly known as the twin city of Chhattisgarh with a population of over 10 lacs is not only acclaimed as the Educational Hub of Chhattisgarh but has also attracted many big box retailers like D Mart, Big Bazaar & Vishal Megamart. The market here has become competitive due to the arrival of these Big box retailers. The Additional competition by E-tailers like Flipkart & Amazon has intensified the competition making the business really difficult for retailers. Few Super Markets have shut down their operation in the city due to rising operating costs and shrinking profits. Traditional retailers are also facing the same situation and many of them are on the verge of shutting down their business. In the Present preparation of the Case study of Shreeji Super Bazaar, a sample of 127 customers has been taken and interview methodology has been adopted. The performance of the store despite the odds it is of this store despite the odds it is facing is one of the key areas of study. The findings could be of some value to other such stores that are faltering under the weight of the bigger players in the market.

**Keywords:** Retail, Super Market, Marketing Strategy

## I. INTRODUCTION

Semi Urban cities are the emerging markets in the Indian economy, with rising urbanization these cities like Durg & Bhilai are attracting the big box retailers like D Mart, Big Bazaar & Vishal Mega Mart. In addition to that there are around 14 super bazaars operating in this 10 lacs populated twin city despite the proliferation of several traditional retailers, E tailers. The outcome of this trend has little effect on the semi urban markets. Retail sales being end stage of any economic activity is presently growing very fast. Retail occupies a remarkable place in the world economy. (Mundhe, 2017) Super bazaars have large array of food products, groceries, fruits, vegetables, meat, confectionery and dairy products. They are extensive forms of traditional grocery stores. They are self-service stores and have wider range than traditional grocery stores. In super bazaars, consumers usually shop by placing their selected products in baskets & Trolleys and pay for the products at the check-outs. Super bazaar provides facilities like comfortable space, clean floor, air-conditioning and free parking lots (A Pilot Study for Business Intelligence to Improve the Decision Making in Super, 2015) Super bazaars are one of the booming business format of retail sector especially in semi urban cities like Durg Bhilai where there is a sound number of literate and service class population. The impact of globalization

*Yashwanth*  
Principal  
Govt. Neveen College Bori  
Dist. Durg (C.G.)

Retailing strategies practiced by Super Bazaar in the era of Cut throat competition with Big box retailers: A Case Study of Rajesh Super Bazaar of Bhilai Chhattisgarh

**Samir Jaiswal**

Research Scholar, Research Centre Kalyan PG Mahavidyalaya Pt. Ravi Shankar Shukla University, Raipur

**Dr. Hansa Shukla**

Principal, Swami Swaroopanand Saraswati Mahavidyalaya, Bhilai C.G

**ABSTRACT**

*The entrance of Big box retailers into Semi-urban cities is posing significant challenges to the Super Bazaar and to the unorganized retailers. However due to adoption of deep discounting and array of products offerings provided to the customer by these big-box retailers have made themselves favorite among the service class in the semi-urban cities like Durg – Bhilai. Durg Bhilai is popularly known as the twin city of Chhattisgarh with a population of more than 10 lakhs, due to its good infrastructure and demographics, it has attracted all the big box retailers like D Mart, Big Bazaar, Vishal Mega Mart and more than 14 other super bazaars in this twin city of Chhattisgarh. Traditional retailers in these market are more than 300 in numbers. Due to this local retailers and fund managers who have invested huge capital in establishing these supermarkets are struggling hard for footfalls and profitability. The Present Study studies the strategies adopted by these super markets to excel and sustain in the presence of big-box retailers. The Study argues that Supermarkets not only sustain but excel if they focus on tax-free food grains and maintain superior quality which will attract the shopper to purchase other commodities in the store. Maintaining the tradeoff between prices and quality is key to excel in today's competitive market.*

**Key words:** Retail, Super Market, Marketing Strategy

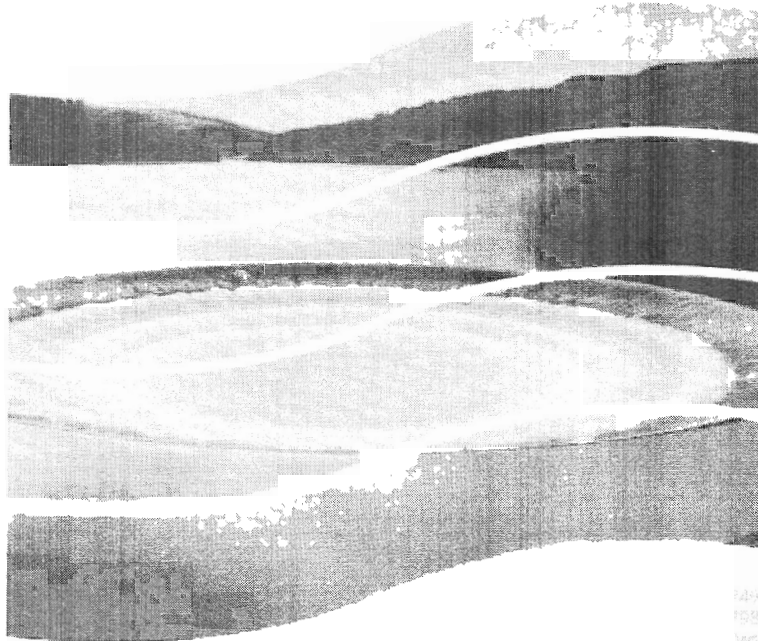
**Introduction**

The Indian retail industry has emerged as one of the most progressive and booming industries



# ELECTRONIC OFFPRINT

Use of this pdf is subject to the terms described below



This paper was originally published by IWA Publishing. It is an Open Access work, and the terms of its use and distribution are defined by the Creative Commons licence selected by the author.

Full details can be found here: <http://iwaponline.com/content/rights-permissions>

Please direct any queries regarding use or permissions to [editorial@iwap.co.uk](mailto:editorial@iwap.co.uk)

  
**Principal**  
**Govt. Neveen College Bori**  
**Dist. Durg (C.G.)**



## Fixed bed column performance of *Tinospora cordifolia* for defluoridation of water

Meena Chakraborty, Madhurima Pandey and Piyushkant Pandey

### ABSTRACT

A continuous adsorption study in a fixed-bed column was carried out by using *Tinospora cordifolia* as an adsorbent for the removal of fluoride from aqueous solution. The effect of flow rate, influent fluoride concentration and bed depth on the adsorption characteristics of adsorbent was investigated at pH 7. The dependencies of breakthrough curves on these parameters were confirmed from the data obtained. Modeling of data was done. Thomas, Yoon–Nelson and Adams–Bohart models were applied to experimental data to predict the breakthrough curves. These kinetic models were helpful to determine the characteristic parameters of column designing for defluoridation on a large scale. Thomas and Yoon–Nelson models were found to be more suitable for the description of the breakthrough curve than the Adams–Bohart model in the present study. It was concluded that the *Tinospora cordifolia*-packed column can be used for effective defluoridation of water.

**Key words** | adsorption, fluoride, kinetic studies, mathematical models, Menispermaceae

**Meena Chakraborty** (corresponding author)  
Govt. Naveen College Bori,  
Durg, Chhattisgarh,  
India  
E-mail: [chakrabortymeena@gmail.com](mailto:chakrabortymeena@gmail.com)

**Madhurima Pandey**  
Bhilai Institute of Technology,  
Durg, Chhattisgarh,  
India

**Piyushkant Pandey**  
LCIT,  
Bilaspur, Chhattisgarh,  
India

### HIGHLIGHTS

- Large scale removal of fluoride from waste water.
- Low cost removal method of removing fluoride from water.
- Environment-friendly defluoridation method.
- Removal at neutral pH.
- Effective regeneration of adsorbent.

*Meena Chakraborty*  
Principal  
Govt. Naveen College Bori  
Dist. Durg (C.G.)

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits copying, adaptation and redistribution, provided the original work is properly cited (<http://creativecommons.org/licenses/by/4.0/>).

doi: 10.2166/ws.2021.065



## Defluoridation of Drinking Water Using Calcium Modified Chitosan

MEENA CHAKRABORTY\*, MADHURIMA PANDEY and PIYUSH KANT PANDEY

Department of Applied Chemistry, Bhilai Institute of Technology, Durg-491 001, India

\*Corresponding author: E-mail: chakrabortymeena@gmail.com

Received: 25 July 2016;

Accepted: 24 September 2016;

Published online: 30 November 2016.

AJC-14168

Fluoride in water has become a major environmental and health issue now a day. A new adsorbent chitosan calcium compound was prepared and used for defluoridation purpose. Defluoridation capacity of the adsorbent was studied by batch technique. Adsorption of fluoride was studied as a function of contact time, pH, initial fluoride concentration and adsorbent dose. The equilibrium sorption data were fitted to Freundlich, Langmuir and Temkin isotherms. The kinetics of sorption was found to follow pseudo second order and particle diffusion model. Result shows that the chitosan calcium adsorbent can be used for defluoridation of water without causing any harm to environment.

**Keywords:** Fluoride, Adsorption, Chitosan, Batch technique.

### INTRODUCTION

Water is essential for existence of life on earth, but in present era we are in search of safe and clean drinking water due to tremendous increase in pollution of water bodies. Both inorganic and organic pollutants are equally responsible for water pollution. Among inorganic pollutants, fluoride is one of the significant contributors of water pollution. According to World Health Organization (WHO), the permissible limit of fluoride in water is 1.5 mg/L [1].

Higher concentration of fluoride in groundwater is geogenic, which happens when ground water comes in contact with the rocks rich in fluoride bearing minerals like topaz, fluorapatite, cryolite and fluorite [2], but fluoride in surface water is anthropogenic due to industrial and mining activities. Fluoride is actually toxic waste from aluminium, steel and fertilizer industries [3]. Silico fluorides are toxic hazardous waste products of these industries, which are captured by wet scrubbers and discharged in water bodies. High concentration of fluoride in water has many adverse effects on human health in terms of dental and skeletal fluorosis. Therefore defluoridation of water having high concentration of fluoride is essential for us.

Fluoride from water can be removed by various methods such as reverse osmosis [5], by using electricals like aluminium sulphate, magnesium or calcium phosphate [6] or by percolation through a bed of material, such as activated carbon [7], activated alumina [8], lignite [9], activated magnesia [10], porous calcite [11] or ion exchange resins [12,13], but these

methods are costly, time consuming and pH sensitive. Adsorption is one of the most efficient methods for the removal of fluoride from water [14].

In the current study, chitosan calcium compound was prepared and used to remove fluoride from water. Chitosan has naturally activating capability without violent side effect on human body and environment. The influence of adsorbent dose, time, initial pH and initial concentration of fluoride were evaluated and equilibrium data was fitted with isotherm and kinetic models.

### EXPERIMENTAL

**Preparation of chitosan calcium compound:** For synthesis of chitosan calcium compound, a known amount of commercial chitosan powder was dissolved in HCl by flocculating it for appropriate time. The composite adsorbent of chitosan and metal was prepared by adding a known amount of metal to the solution and stirring for appropriate time. The solution mixture was then neutralized by adding base solution. The precipitate was filtered, dried in hot plate and kept overnight. Oven dried modified chitosan was powdered with the help of mechanical grinder.

**Preparation of stock solution:** Fluoride stock solution was prepared by dissolving a known quantity of analytical grade sodium fluoride in distilled water. The solution series for the study were obtained by dilution of the stock solution to the required concentrations. Concentration of fluoride was then determined by ion selective electrode. All adsorption

*Meena Chakraborty*  
Principal  
Govt. Neveen College Bori  
Dist. Durg (C.G.)

Revised list of UGC approved journals checked on 28 Aug. 17

### UGC Journal Details

Name of the Journal : Asian Journal of Chemistry  
ISSN Number : 09707077  
e-ISSN Number :  
Source: Scopus & ICI  
Subject: Chemistry(all)  
Publisher: Chemic Publishing Co.  
Country of Publication: India  
Broad Subject Category: Science

*Javishree*  
Principal  
Govt. Neveer College Bori  
Dist. Durg (C.G.)