



# KrishiKosh (कृषिकोश)

(/) An Institutional Repository of Indian National Agricultural Research System



Advanced Search (/advanced-search)

[Krishikosh \(/\)](#) / [Birsa Agricultural University, Ranchi \(/handle/1/93542\)](#) / [Thesis \(/handle/1/93550\)](#)

Please use this identifier to cite or link to this item: <http://krishikosh.egranth.ac.in/handle/1/5810026260>

Authors: Samad, Subhash Chandra (/browse?type=author&value=Samad%2C+Subhash+Chandra)

Advisor: Kumar, Rakesh (/browse?type=author&value=Kumar%2C+Rakesh)

Title: ASSESSMENT OF FLUORIDE AND NITRATE CONTENT IN DRINKING AND IRRIGATION WATER OF PALAMAU AND GARHWA DISTRICTS OF JHARKHAND

Publisher: Birsa Agricultural University, Kanke, Ranchi, Jharkhand

Language: en\_US

Type: Thesis

Pages: 62

Agrotags: null

Keywords: ASSESSMENT OF FLUORIDE AND NITRATE CONTENT IN DRINKING AND IRRIGATION WATER OF PALAMAU AND GARHWA DISTRICTS OF JHARKHAND

**Abstract:** Water samples were collected during post-monsoon (September, 2009) and premonsoon (April, 2010) periods from different locations of Palamau and Garhwa districts of Jharkhand. Sixty five each surface and ground water samples were collected during monsoon period from one district, altogether 230 samples were collected and analysed for hydro-chemical properties, BOD, COD, SAR and RSC. Water samples studied were slightly alkaline in nature having pH in the range 6.69 to 8.48. The electrical conductivity ranged from 0.75 to 2.25 dSm<sup>-1</sup>. Carbonate, chloride and sulphate content of the samples were within safe limit and suitable for drinking purpose, while 85 per cent samples showed bicarbonate concentration above safe limit. Evaluation of nitrate content in surface and ground water indicate that over 40.0 per cent samples were above the safe limit (45 mg/l) in Palamau districts. The extent of nitrate contamination in water samples of Garhwa district was comparatively low. Fluoride concentration in surface water was very low in both districts. However, the open and bore well samples contained fluoride between 1.0 to 1.5 mg/l (prescribed safe limit) in 31.58 and 23.91 per cent samples in Palamau district and 30.00 and 42.22 per cent in Garhwa district. Thus fluoride concentration of water samples of Palamau district was unsafe (42 to 56 per cent), while it was of a lower order (15 to 24 per cent) in Garhwa district. Blocks having unsafe fluoride content in water were Daltonganj, Chhatarpur, Satbarwa and Vishrampur in Palamau district and were Nagaruntari, Ramna, Garhwa and Dhurki in Garhwa district. Calcium, magnesium, potassium and sodium content in the drinking and irrigation water of Palamau and Garhwa districts were within the safe limit. The value of BOD and COD in water samples ranged from 0.30 to 8.24 mg/l and 17.2 to 78.0 mg/l, respectively in both districts. These values are below the maximum permissible limit hence regarded safe. The SAR values of water sample in all cases were less than 10.0, which indicate their suitability for irrigation purpose. However, RSC values reveal that 38, 42 and 20 per cent water samples in Palamau and 33, 53 and 14 per cent water samples in Garhwa district fall under safe, moderate and unsafe category, respectively. Correlation matrix of fluoride and nitrate with other water quality parameters reveal that fluoride content of water was positively correlated with pH, calcium, magnesium, BOD, COD and RSC and negatively correlated with carbonate, bicarbonate and sulphate, whereas, nitrate content of water was positively correlated with EC, bicarbonate, chloride, calcium and magnesium and negatively correlated with fluoride.

**Description:** ASSESSMENT OF FLUORIDE AND NITRATE CONTENT IN DRINKING AND IRRIGATION WATER OF PALAMAU AND GARHWA DISTRICTS OF JHARKHAND

**Subject:** Soil Science and Agriculture Chemistry

**Theme:** ASSESSMENT OF FLUORIDE AND NITRATE CONTENT IN DRINKING AND IRRIGATION WATER OF PALAMAU AND GARHWA DISTRICTS OF JHARKHAND

**These Type:** M.Sc

**Issue Date:** 2011

**Appears in Collections:** Thesis (/handle/1/93550)

Files in This Item:

File	Description	Size	Format
------	-------------	------	--------


1296 Subhash Chandra  
Samad.pdf

3.82  
MB Adobe  
PDF



[View/Open \(/displaybitstream?handle=1/5810026260\)](/displaybitstream?handle=1/5810026260)

[Show full item record \(/handle/1/5810026260?mode=full\)](/handle/1/5810026260?mode=full)

 [\(/handle/1/5810026260/statistics\)](/handle/1/5810026260/statistics)

Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.