



RTI-144  
06/02/2018

BY SPEED POST/FAX

भारतीय मृदा विज्ञान संस्थान (भा०कृ०अनु०प०)

नबीबाग बैरसिया रोड, भोपाल - 462038

ICAR-Indian Institute of Soil Science

Nabibagh, Berasia Road, Bhopal-462038 (M.P.)

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Web: www.iiss.nic.in

Application No. 144-02/ISS/RTI/2018

Date: 21-02-2018

To,

Mr. Rohit Raj  
New Delhi - 110008

Sub: Reply to information under RTI Act, 2005- reg.

Ref: RTI 144-02/ISS/RTI/2018 dated 06/02/2018

Dear Sir,

Please find enclosed herewith the information (4 pages) in response to your RTI application No. 144-02/ISS/RTI/2018 received at this end on 06/02/2018 (Registration No. ICARH/R/2018/80024 dated 30/01/2018). Kindly acknowledge the receipt of this reply letter along with enclosure (4 pages). Further it is informed that the Appellate Authority is Director, ICAR-IISS, Bhopal and his telephone no. is 0755-2730946.

Yours sincerely,

Encl: Information containing 4 pages

(R. Elanchezhian)

Pr. Scientist & Nodal Officer-cum CPIO RTI

Copy to:

Dr. P.P. Biswas, PS & CPIO, ICAR, Krishi Anusandhan Bhavan-II, Pusa, New Delhi-110012

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**ICAR-Indian Institute of Soil Science**  
**Nabibagh, Berasia Road, Bhopal**

Dated: 21/02/2018

**NOTE**

In response to your note pertaining to application No. 144-02/IISS/RTI/2018 dated 20/02/2018 regarding RTI application of Shri Rohit Raj, New Delhi – 110008, the response to the questions is submitted hereby as mentioned below.

Information sought	Response
What are the mechanisms government has adopted to identify mercury presence in soil.	The project All India Coordinated Research Project on Secondary and Micronutrients and Pollutant Elements in Soils and Plants (AICRP-MSPE) does not deal with the analysis of mercury in soil.
Also, do there are any efforts undertaken by government to ensure farmers about heavy metal presence in soil.	However, the project (AICRP-MSPE) has done some scattered study in assessing the heavy metal concentration in soils irrigated with sewage/sludge/industrial effluent in peri-urban areas of some selected cities of the country.



**(Dr. Arvind Kumar Shukla)**  
**Project Coordinator (AICRP-MSPE)**

Dr. R. Elanchezhian  
PS & Nodal Officer-cum CPIO (RTI)

Gmail

ICAR-IISS Bhopal <pmecelliiss@gmail.com>

**wd: mercury determination in soil**

message

**Jayanta Saha** <jayanta.kumar.saha.soil@gmail.com>  
To: PME Cell <pmecelliiss@gmail.com>

Wed, Feb 21, 2018 at 1:00 PM

----- Forwarded message -----

From: **sonalika sahuo** <sonalikaiari@yahoo.com>  
Date: Wed, Feb 21, 2018 at 12:43 PM  
Subject: Re: mercury determination in soil  
To: Jayanta Saha <jk\_saha12000@yahoo.com>, Jayanta Saha <jayanta.kumar.saha.soil@gmail.com>

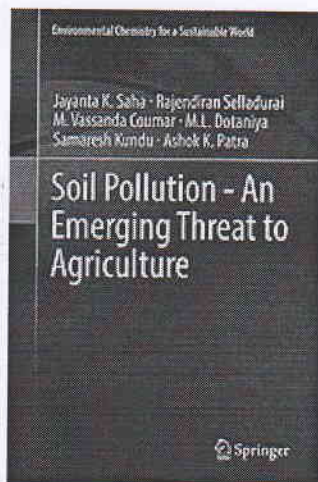
Sonalika Sahoo  
Scientist  
Division of Environmental Soil Science  
ICAR-IISS, bhopal-462038

On Tuesday, February 20, 2018, 5:07:12 PM GMT+5:30, sonalika sahuo <sonalikaiari@yahoo.com> wrote:

dear sir,  
please find the procedure for mercury determination herewith the attached file.

Sonalika Sahoo  
Scientist  
Division of Environmental Soil Science  
ICAR-IISS, bhopal-462038

—  
Dr. J.K. Saha,  
Member-Secretary QRT, and  
Head & Principal Scientist (Soil Science),  
Division of Environmental Soil Science,  
Indian Institute of Soil Science,  
Nabibagh, Berasia Road,  
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Email: jk\_saha12000@yahoo.com; jayanta.kumar.saha.soil@gmail.com  
www.iiss.nic.in  
<http://www.springer.com/in/book/9789811042737>



**Procedure for total mercury.docx**

15K

### Procedure for total mercury (Hg) determination in soil

To a known weight of wet soil (equivalent to an oven dry weight of approximately 1g) contained in a pyrex digestion flask, add 15mL of a 2:1 mixture of concentrated  $\text{H}_2\text{SO}_4$  and  $\text{HNO}_3$ . Mix well, and place the mixture in an ice bath to prevent volatilization of Hg. After cooling, add 2 mL of 12N HCl. For calcareous samples, the acid mixture should be added dropwise with continuous shaking until evolution of  $\text{CO}_2$  has subsided. For samples of high organic content, additional acid mixture (about 10mL) may be needed to ensure complete digestion, and/or a predigestion step may be employed in which the sample is treated with 5 mL of conc.  $\text{HNO}_3$  to oxidize organic matter without excessive frothing.

Place the flask in a water bath maintained at 50-60°C (note, higher temperature may result in volatilization of Hg), and allow digestion to continue until suspension is clear (usually after 2 to 3 hours). Remove the flask from the water bath, and cool the contents by transferring the flask to an ice bath. Slowly add 5 mL of 6% wt/vol  $\text{KMnO}_4$  solution with gentle stirring, and allow the mixture to stand for 15 min. Next, slowly add additional  $\text{KMnO}_4$  solution with gentle stirring until the purple color of the permanganate ion persists for at least 15min, followed by addition of 5mL of 5%  $\text{K}_2\text{S}_2\text{O}_8$  solution to ensure complete oxidation of organomercury compounds. Allow the mixture to stand for at least 4 hours, preferably overnight. By this stage, all the Hg in the sample should be present as the mercuric ion  $\text{Hg}(\text{II})$ , and the total quantity present can be determined by ICP-MS system.

### Reference:

Page, A.L. Miller, R.H. and Kenney, D.R. (1982). *Methods of Soil Analysis part 2 -Chemical and Microbiological properties*. 2<sup>nd</sup> edn. Madison, Wisconsin, USA.