

1. Record Nr.	UNINA9910298386403321
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Titolo	Impacts of Selenium on the Biogeochemical Cycles of Mercury in Terrestrial Ecosystems in Mercury Mining Areas // by Hua Zhang
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2014
ISBN	3-642-54919-5
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (203 p.)
Collana	Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053
Disciplina	363.179
Soggetti	Geochemistry Environmental chemistry Public health Environmental health Environmental pollution Environmental Chemistry Public Health Environmental Health Terrestrial Pollution
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"Doctoral Thesis accepted by University of Chinese Academy of Sciences (former Graduate University of Chinese Academy of Sciences), Beijing, China."
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Research Background -- Advances of Research on the Mechanisms of Selenium-Mercury Interactions and Health Risk Assessment -- Research Subject, Methods and Significance -- Overview of the Study Area (Wanshan) -- Biogeochemical Cycles of Mercury in River System -- Biogeochemical Cycles of Selenium in River System -- Interaction of Mercury and Selenium in River System -- Biogeochemical Cycles of Mercury in Soil-Rice System -- Biogeochemical Cycles of Selenium in Soil-Rice System -- Interaction of Mercury and Selenium in Soil-Rice System -- Health Risk Assessment for Human Exposure to Mercury -- Health Risk Assessment for Human Exposure to Selenium -- Health Risk Assessment for Human Exposure to Mercury and Selenium

Considering Selenium-Mercury Interactions -- Conclusions -- Research Needs and Future Outlook.

Sommario/riassunto

From a new perspective, namely focusing on the interaction of selenium and mercury, this thesis provides new insights into traditional research on biogeochemical cycles of mercury in soil-plant interaction and associated human exposure and risks. The subject of this thesis is both valuable and timely, providing essential information not only on selenium-mercury interaction in the soil-plant system but also on how to assess the combined benefits and risk of co-exposure to mercury and selenium. This work also sheds light on future aspects regarding prevention, remediation and risk management for environmental mercury contamination. Presenting high-quality papers published in leading international SCI journals such as Environmental Health Perspectives and Environmental Science & Technology and having been recognized with the Special Award of Presidential Scholarship Award and Excellent Doctoral Dissertations Prize of the Chinese Academy of Sciences (CAS), this thesis offers a valuable resource for scientific communities, policy-makers and non-experts who are interested in this field. Dr. Hua Zhang works at the Norwegian Institute for Water Research (NIVA), Oslo, Norway.