学术论文的写作与方法

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Outline

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Tense, verb, transition & paragraph

Critical Reviews in Environmental Science and Technology

CREST

2018 Impact Factor 5.980

Publish open access in this journal

State the question	Summarize the results	Describe the contents	
Article 1	Article 2	Article 3	Article 4
What's the best way to achieve successful mainstream partial nitritation-anammox application? >	Feasibility of usage of hemp as a feedstock for anaerobic digestion: Findings from a literature review of the relevant technological and energy dimensions >	Case study on wastewater treatment technology of coal chemical industry in China >	Emission sources and full spectrum of health impacts of black carbon associated polycyclic aromatic hydrocarbons (PAHs) in urban environment: A review >

Title   Describe contents 80-90%

CRITICAL REVIEWS IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY
https://doi.org/10.1080/10643389.2019.1656512

Taylor & Francis
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INVITED REVIEW

历红波-CREST作者

Arsenic, lead, and cadmium bioaccessibility in contaminated soils: Measurements and validations

Hong-Bo Li[a], Meng-Ya Li[a], Di Zhao[a], Jie Li[b], Shi-Wei Li[c], Ping Xiang[a], Albert L. Juhasz[d], and Lena Q. Ma[a]

Simultaneous Determination of Multiple Classes of Phenolic Compounds in Human Urine: Insight into Metabolic Biomarkers of Occupational Exposure to E-Waste

Meiqing Lin, Taicheng An, *et al.*

doi.org/10.1021/acs.estlett.0c00187

Publication Date (Web): April 8, 2020

安太成-CREST副主编

Title — Summarize results 5-10%

Municipal Solid Waste Treatment System Increases Ambient Airborne Bacteria and Antibiotic Resistance Genes

Linyun Li, Qing Wang, Wenjing Bi, Jie Hou, Yingang Xue, Daqing Mao, Ranjit Das, Yi Luo*, and Xiangdong Li*

罗义-CREST审稿人

Nitrite Accumulation Is Required for Microbial Anaerobic Iron Oxidation, but Not for Arsenite Oxidation, in Two Heterotrophic Denitrifiers

赵方杰-CREST作者

Jun Zhang, Cheng-Wei Chai, Laurel K. ThomasArrigo, Shi-Chen Zhao, Ruben Kretzschmar, and Fang-Jie Zhao*

文摘

Abstract

- **Most read section of a paper**
- **Short summary of a paper**
  1. **Introduction**
  2. **Materials & Methods**
  3. **Results & Discussion**
  4. **Conclusions**

麻雀虽小五脏俱全

Abstract

1 Intro — Lead bioavailability in contaminated soils varies considerably depending on Pb speciation and sources of contamination. In this study, the Tessier sequential extraction was used to fractionate Pb in 3 contaminated soils to exchangeable (F1), carbonate-bound (F2), Fe/Mn oxides-bound (F3), organic-bound (F4), and residual fractions (F5).

2 M&M — Based on the mouse model, Pb-RBA in the soils was 44-93%, which decreased to 43-89%, 28-75%, and 15-68% in the F345, F45, and F5 fractions.

3 R&D — Based on Pb-RBA in the soil residues, Pb-RBA in different fractions was calculated based on a mass balance. The data showed that Pb-RBA was the highest in the exchangeable and carbonate fraction, and the lowest (15-68%) in the residual fraction. In addition, Pb in the first three fractions (F1-F3) contributed most (83-89%) to bioavailable Pb in contaminated soils.

4 Concl — Our study shed light on oral bioavailability of Pb in contaminated soils of different fractions based on sequential extraction and provide important information for soil remediation

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Abstract

- **Most read section of a paper**
- **Short summary of a paper**
  1. **Introduction**
  2. **Materials & Methods**
  3. **Results & Discussion**
  4. **Conclusions**
- **Help editors to desk-reject a paper**

- 个人建议-**Provide quantitative data**

麻雀虽小五脏俱全

引言

Introduction

- **Background information**
  - **Why is this study important**
  - **What are your objectives**
- **Based on important results: 前呼后应**
- **Move from general to specific information**

Introduction

Comparing CaCl$_2$, EDTA and DGT methods to predict Cd and Ni accumulation in rice grains from contaminated soils (Guan et al., Environment Pollution, 2020, 260:114042)

1. **Soil contamination by heavy metals**
2. **Heavy metals to Cd and Ni**
3. **Rice uptake of Cd and Ni**
4. **Three prediction methods**
5. **Objectives**

Introduction

- **Background information**
  - **Why is this study important**
  - **What are your objectives**
- **Based on important results: 前呼后应**
- **Move from general to specific information**
- **个人建议-The last sentences should be a statement of objectives**

方法

Materials & Methods

- **Report what you did to repeat the findings**
  - **No laundry list**
- **Target graduate students**
- **个人建议-Last paragraph provides statistical tests used**

Materials & Methods

Lead bioavailability in different fractions of contaminated soils based on a sequential extraction and mouse kidney model (Li et al., Environment Pollution, 2020, 262:114253)

2.1. Sample collection and characterization

2.2. Sequential extraction

2.3. Mouse model for Pb-RBA measurement

2.4. Chemical and statistical analysis

2.4.1 Statistical analysis 1
2.4.2 Statistical analysis 2
2.4.3 Statistical analysis 3

■ MATERIALS AND METHODS

Growth of *P. vittata*. The spores of *P. vittata* were collected from Florida, which were preserved at Nanjing

结果

Results

♦ **Identify the novel aspects of the results**

- **What is new and what makes it non-obvious**

♦ **Identify the significance of the results**

- **Implicated improvements and impact**

♦ 个人建议-**Briefly describe experiment without details, a sentence or two**

http://www.cs.columbia.edu/~hgs/etc/writing-style.html

Results

Emerging and legacy PAHs in urban soils of four small cities: Concentrations, distribution, and sources (Gao et al., STE, 2019, 685:463-470)

3. Results and discussions

So far, two studies have investigated the concentrations of 16 USEPA legacy PAHs in large cities in Florida, USA (Orlando, Tampa, and Miami), however, their concentrations in small cities are unknown (Banger et al., 2010; Liu et al., 2019). In addition, two studies focused on 6 emerging PAHs in urban soils. While Gao et al. (2019) investigated the concentrations of 6 emerging PAHs in 114 urban soils of large cities (Orlando and Tampa), Richter-Brockmann and Achten (2018) determined AN, BcF, and DlP concentrations in 2 urban soils. However, their concentrations in small cities are unknown.

3.1. Concentrations of 16 legacy PAHs and 6 emerging PAHs

Results

Order multiple results logically

- **Most to least important**
- **Provide information for later use**
- **General followed by specific example**

http://web.archive.org/web/20010620075413/www.hms.harvard.edu/fdd/comm/two.html

Results

Arsenic accumulation and distribution in *Pteris vittata* fronds of different maturity: impacts of soil As concentrations (Han et al., STE, 202:715)

As expected, more As was accumulated in the fronds than roots (Fig. 2D). For example, 32.9 mg kg^{-1} As was in the fronds, which was 4 times that in the roots in the control (Fig. 2D). Similar results were also observed in As$_{63}$ (1170 vs. 135 mg kg^{-1}) and As$_{228}$ (5850 vs. 364 mg kg^{-1}) treatments.

Results

Order multiple results logically

- **Most to least important**
- **Provide information for later use**
- **General followed by specific example**

- 个人建议-**Subtitles state results**

Results

Expression of new *Pteris vittata* P-transporter PvPht1;4 reduces arsenic translocation from roots to shoots in tobacco plants (Cao et al., EST, 2020, 54, 1045)

内容
- **Identification, expression, and subcellular location of PvPht1;4 in *P. vittata***
- **P and AsV uptake of PvPht1;4 lines in yeast-mutant lacking P transporters**

结果
- **Expressing PvPht1;4 decreased As translocation to and as levels in tobacco shoots**
- **Expressing PvPht1;4 enhanced As detoxification in tobacco roots**

图表

Figures/tables

- **Using uppercase**
  - **Figure 1/Table 1**
- **Should stand alone as much as possible**
- **Place multiple plots in one page**
  - **Easy to compare related data**
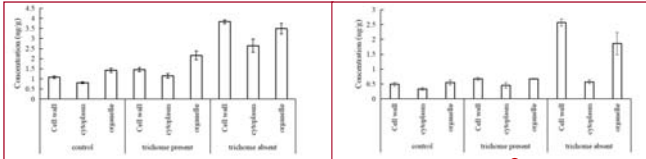 - **Keep the scales consistent to compare**

Results

Fig. 1 The concentration and distribution of Pb in the subcellular structures of *T. brachycaulos* leaves
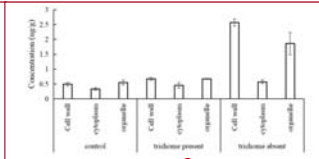
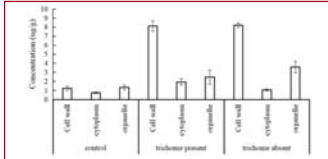Fig. 2 The concentration and distribution of Cu in the subcellular structures of *T. brachycaulos* leaves

Fig. 3 The concentration and distribution of Zn in the subcellular structures of *T. brachycaulos* leaves
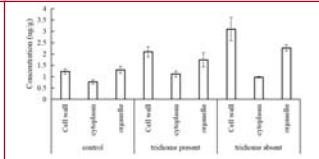
Fig. 4 The concentration and distribution of Ni in the subcellular structures of *T. brachycaulos* leaves

---

Figures/tables

- **Using uppercase**
  - **Figure 1/Table 1**
- **Should stand alone as much as possible**
- **Place multiple plots in one page**
  - **Easy to compare related data**
  - **Keep the scales consistent to compare**
- **Include error bars**
- **Help editors to desk-reject a paper**

http://www.ent.ohiou.edu/~valy/techwrite.html

讨论

Discussions

- **Summarize the results first**

- **Highlight most significant results**
  Expand good data, mention bad data

- **Interpret data in light of published results and provide whys**

Discussions

Fractionation in the control soil before plant uptake showed that the Ca-As (45.3%) was the predominant fraction (Fig. 1). This agrees with the reports of Adriano (1986) that in calcareous soils, arsenic preferentially sorbs with calcium minerals over those of iron and aluminum. The soil used in this experiment had a soil pH of 7.6 and a total Ca content of 1.2% (Fayiga et al., 2004), thus calcium is expected to be dominant in the exchange sites in this soil. In an acidic sandy soil spiked with arsenic, the trend observed by Onken and Adriano (1997) was different, i.e. Fe-As > Al-As > Ca-As > WE-As.

结论

Slide 1

In a strong ending, you analyze results and give a future perspective

Conclusions

Analysis of Results

Analyze results from overall perspective

Future Perspective

*Several options:
Make recommendations
Discuss future work
Repeat limitations*

Slide 2

Conclusion

Expressing arsenite antiporter PvACR3;1 in rice decreases inorganic arsenic content in rice grains (Chen et al., EST, 2019, 53:10062)

In summary, PvACR3;1 is a critical AsIII antiporter in As-hyperaccumulator *P. vittata*. Its heterologous expression in rice increased As content in rice roots, thereby effectively <u>decreasing As accumulation in rice shoots</u>. Most importantly, the transporter also decreased As accumulation in rice grains, especially inorganic As. PvACR3;1 localized on vacuolar membranes in transgenic plants may mediate AsIII sequestration into rice root vacuoles, thus decreasing AsIII translocation to rice shoots and grains. Our data demonstrated that transferring PvACR3;1 into rice helped to breed low-As rice, which is of significance for food safety and human health.

Slide 3

Outline

1. **Title**
2. **Abstract**
3. **Introduction**
4. **M & M- Figures and Tables**
5. **Results**
6. **Discussions**
7. **Conclusions**

拒稿率：75%

顺序

Slide 4

Order of scientific writing

1. **Methods**
2. **Results (Tables and Figures)**
3. **Introduction**
4. **Discussion**
5. **Abstract**
6. **Title**

时态

Use of tense

♦ **Use past tense for completed actions**
1. **Abstract**
2. **Materials and Methods**
3. **Results**
4. **We FOUND that…, the average WAS ….**

♦ **Use present tense for published information or it continues to be true**
1. **Introduction**
2. **Discussions**
3. **Figure 2 SHOWS…, The data SUGGEST…., We BELIEVE…., The results CONFIRM…..**

http://www.rbs0.com/tw.htm

动词-转折-段落

Verb, transition & paragraph

♦ **Use of verbs** 斯坦福大学Writing in the Sciences by Kristin Sainani

- **Verb moves a sentence along, noun slows a sentence down**
- **Use 动词whenever possible, don't use 动名词**
- **I made a recommendation.. → I recommended;**
- **There was an increase in metal content .. → Metal content increased …**
- **For the development of …→ to develop**

Verb, transition & paragraph

♦ **Transition in paragraphs or sentences**
- **Like traffic signal-引导**
- **Unlike rice, corn…**
- **Besides soils, we analyzed plants…;**

♦ **One paragraph one idea**
- **Leading sentence, again like traffic signal**
- **Not too long**
- **Not too short either**

怎么写好文章

1. 写文章好比讲故事
   - ➢ 材料要新颖；
   - ➢ 方法要引人；
   - ➢ 逻辑与语言。

2. 改文章好比修树枝
   - ➢ 保留重要的；
   - ➢ 删去不重要的；
   - ➢ 不断的修剪。

怎么写好文章

Read-学习	**Practice**
Write-模板	**Practice**
Read-学习	**Practice**
Write-模板	**Practice**
Read-学习	**Practice**
Write-模板	**Practice**

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Tandfonline.com/toc/best20/current

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THANK YOU

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Environmental Science: Water Science and Technology: **2/203**

Environmental Science: Environmental Engineering: **2/117**

Environmental Science: Waste Management and Disposal: **4/92**

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