Dear Editor-in-Chief,

I enclose the file attachment of the revised version of the manuscript submitted for possible publication in the *Journal of the Serbian Chemical Society* (ID4515), “Possibilities of assessing trace metal pollution using *Betula pendula* Roth. leaf and bark – experience in Serbia” by Dragana Pavlović, Marija Pavlović, Milica Marković, Branko Karadžić, Olga Kostić, Snežana Jarić, Miroslava Mitrović, Ivan Gržetić and Pavle Pavlović.

In the revised version, we have taken into account all the remarks, suggestions and comments of the Reviewers. Revised text is in blue colour.

The following includes the review and comments regarding our manuscript, and our views.

We hope the revised version meets your criteria and the criteria of the *Journal of the Serbian Chemical Society*, and that we will be able to have it printed in this journal.

Kind regards,

Dragana Pavlović

**Reviewers' comments:**  
**REVIEWER B:**

**Comment 1: The sentences should start with the full name of the metal, instead of B, Cu, Sr and Zn.**

The suggestion has been accepted. All sentences which start with B, Cu, Sr and Zn were changed and start with the full name of the metal.

**Comment 2: In part Introduction, Page 2. Line 1: The word “intensify” should be replaced with “intensifies”**

The suggestion has been accepted. The word “intensify” was replaced with “intensifies”

**Comment 3: In part Introduction, Page 2. Line 10: “...and accumulate aerial metals from the soil by their root system...” This is quite unclear. Are those air-borne or air-originated metals?**

In the revised version, part of the sentence “...and accumulate aerial metals from the soil by their root system...” has been changed to “...and accumulate metals from the soil by their root system...”

**Comment 4: In part Introduction, Page 2. Line 14: “…because of….” should be replaced with “due to”**

The suggestion has been accepted. Term “because of” was replaced with “due to”

**Comment 5: In part Experimental, Page 4. Line 1: I suppose that pH was measured directly in suspension, so it should be mentioned.**

In the revised version, sentence “The pH was measured directly in the suspension.” has been added.

**Comment 6: In part Experimental, Page 4. Line 17:“…were expressed in…” should be replaced with “…were expressed as…”**

The suggestion has been accepted. In revised version, part of the sentence“…were expressed in…” has been changed to “…were expressed as…”

**Comment 7: In part Experimental, Page 5. Line 7: The expression “mutual” should be omitted. Just “relationships” is ok.**

The suggestion has been accepted. In revised version, the word “mutual” has been deleted.

**Comment 8: In part Results and Discussion, Page 5. Line 18: “mechanical composition” is “granulometry” or “soil texture”**

The suggestion has been accepted. In revised version, part of the sentence“… (mechanical composition)…” has been deleted.

**Comment 9: In part Results and Discussion, Page 7. Line 28: The sentence “The exceptions were Pancevo…” is completely unclear and confusing. Besides, “the minimum values” reported for Pancevo and control site are not that low, especially not in respect to Obrenovac. Also, it is not clear how high are reported concentrations in respect to normal values. So this should be written more precisely and with more care.**

The suggestion has been accepted. In revised version, this part has been changed into: ”… The concentration of Sr in plants is very variable, although the highest concentrations are usually observed in plant tops.31 Toxic concentrations of Sr in birch leaves (>30 mg kg−1,42) were measured throughout the season at all the examined localities. The maximum concentration were reached during August, except in Belgrade where it was reached in June (51.57 mg kg-1), while the lowest during October at all sites. Given the fact that concentrations in range of 1-10 mg kg-1 31 are considered as normal Sr values for plant tissues, concentrations in range of 21.61-29.73 mg kg-1 obtained for Pančevo, Obrenovac and control site during October could be interpreted as excessive or even toxic”

**Comment 10: In part Results and Discussion, Page 7. Line 31: What does “an extended exposure period” means in this experiment?**

In our study, we considered term “an extended exposure period” as period of several months of exposure to pollution (from June to October) in which the research has been conducted. In order to avoid confusion this sentence has been deleted.

**Comment 11: In part Results and Discussion, Page 11. The last sentence on page: This indicates that bark chemistry….” Is it also expected that atmospheric deposition affects amount of some metals in leaves too, since they can enter the leaf through stomata?**

Yes, we agree. It is expected thatatmospheric deposition affects amount of some metals in leaves too, however the CCA analysis has been focused on relations among the concentrations of elements in the soil and plant tissues (leaf and bark).

**Comment 12: In part Results and Discussion, Page 13. The entire section related to Chl a contents in leaves and its relationship to Sr amount is unclear and should be rewritten with attention. The authors did not mention negative correlation between Sr concentration in leaves and Chl a amount in plants from Belgrade that have the highest Sr content in leaves and the lowest Chl a amount throughout the entire season, although they cited the literature. I suggest the authors to make an effort to connect better heavy metal concentration in leaves with pigment amounts. It is obvious that difference in pigments is the most pronounced in October, after several months of exposure to pollution.**

The suggestion has been accepted. In revised version, this part has been rewritten more precisely and changed into: ...” “…The lowest content of Chl a was measured in Belgrade during the entire vegetative season, which could be attributed to toxic concentrations of Zn and Sr in birch leaves. Moyen and Roblin (2010)6 showed that Sr probably blocks ion channels in the chloroplast envelope and decreases the content of Mg, which is main component of chlorophyll. In contrast, the highest Chl a content was measured in leaves samples from Obrenovac. Our present results do not suggest clear reasons for such birch behavior, so we can only assume that sensitivity of species to any element depends on concentration, exposure period, age and growth conditions. ..”

**REVIEWER C:**

**Comment 1: In part Abstract, Page 1 Line 2: Add number of parks -** 5 parks

The suggestion has been accepted. The authors added word “five” in front of word “parks”

**Comment 2: In part Извод, Page 18 Line 5: Add-Sa izuzetkom sadržaja Zn**

Сугестија је усвојена. Реченица је измењена у: „Већа акумулација елемената је забележена у листовима у односу на кору са изузетком садржаја Zn.“

**Comment 3: In part Извод, Page 18 Line 12: Hemijska svojstva zemljišta ili ste mislili sadržaji elemenata u zemljištu?**

**Comment 4**: **In part Извод, Page 18 Line 13: Sadržaji elemenata u zemljištu**

Аутор је објединио Кометар 3 и Коментар 4, реченица је преформулисана у „Анализа ефеката коју садржај елемената у земљишту има на њихову акумулацију је показала да садржај елемената у земљишту слабо потврђује варијабилност елемената у кори (27,6 %) у односу на листове (82,99 %).“

**Comment 5: In Suplementary file, Part Species description, Page 3 Line 7: How old were analyzed trees, and do you take samples of leaves and bark from one tree or from few, and are birch trees in different part of park or in one group?**

**Comment 6: In Suplementary file, Part Sampling, Page 3 Line 18: How many samples then you had? Do you mean 5 composite and 5 trees or?**

In the revised version authors linked Comment 5 and Comment 6 and provided explanation related to suggestion of reviewer. The part sampling has been rewritten as “The research was carried out at three monthly intervals (June, August, October) during the year 2012. It should be mentioned that it was the warmest and the least rainy year (in relation to the 1981-2010 reference period), which surpassed the number of tropical days and nights since the beginning of their measurement in Serbia.4

Determination of heavy metal content and biochemical analyses were conducted on the leaves and bark of *B. pendula*collected from three to five randomly chosen trees at each sampling site. Trees were 20–30-years old. Leaves were taken uniformly from the lower foliage and from different quarters of the tree crowns with stainless-steel scissors using polyethylene gloves, with an initial quantity of about 30 g of each sample. Flakes of the bark layer of about 4-5 mm thickness and maximum dimensions about 1×3 cm2 were carefully cut with a stainless-steel knife at 1.2-1.5 m above ground level (in all directions around a tree). Composite topsoil samples at 0-10 cm of depth were taken at 5 points around each tree using a stainless-steel shovel. Foreign objects and stones were removed by hand, and samples were packed in clean plastic bags.

**In the revised version, authors have corrected the order of some references and other mistakes that will be provided in following order:**

In part Results and Discussion,

Page 14.

Line 15 The reference number in superscript has been corrected, instead of “50-52”, “49-51” has been added

Line 16 The reference number in superscript has been corrected, instead of “53”, “52” has been added

Line 18 The reference number in superscript has been corrected, instead of “49, 53,54”, “52-54” has been added

Line 31 The reference number in superscript has been corrected, instead of “50”, “49” has been added

Page 15.

Line 3 The reference number in superscript has been corrected, instead of “53”, “52” has been added

In part Conclusion,

Page 16.

Line 2 The species name has been corrected, instead of „Betula pendula“, „*Betula pendula*“ has been added

In part References,

Page 20.

Line 22 Reference “49. F. Nabeela, W. Murad, I. Khan, I. A. Mian, H. Rehman, M. Adnan, A. Azizullah, *Plant Physiol. Biochem.* **95** (2015) 15” has been deleted

Line 24 Reference order has been changed, instead of “50 A. Fargašova, *Biol. Plantarum*, 44 (2001) 471”, “49 A. Fargašova, *Biol. Plantarum*, 44 (2001) 471” has been added

Line 25 Reference order has been changed, instead of “51. P. C. Joshi, A. Swami, *Environmentalist*, **27** (2007) 365 “, “50. P. C. Joshi, A. Swami, *Environmentalist*, **27** (2007) 365” has been added

Line 26 Reference order has been changed, instead of “52. S. S. Baek, T. Han, S. K. Ahn, H. Kang, M. R. Cho, S. C. Lee, K. H. Im, *Plant Pathol. J.* **28** (2012) 446”, “ 51. S. S. Baek, T. Han, S. K. Ahn, H. Kang, M. R. Cho, S. C. Lee, K. H. Im, *Plant Pathol. J.* **28** (2012) 446” has been added

Line 28 Reference order has been changed, instead of “53. A. Dezhban, A. Shirvan, P. Attaro, M. Delshad, M. Matinizadeh, M. Khoshnevis, *J. Forest Res.* **6** (2015) 323”, “52. A. Dezhban, A. Shirvan, P. Attaro, M. Delshad, M. Matinizadeh, M. Khoshnevis, *J. Forest Res.* **6** (2015) 323” has been added

Line 30 Reference “53. F. Nabeela, W. Murad, I. Khan, I. A. Mian, H. Rehman, M. Adnan, A. Azizullah, *Plant Physiol. Biochem.* **95** (2015) 15” has been added