Review of the ms 'Properties of dissolved and total organic matter…..' by **Bischoff et al. ms bg-2014-463**

General comments

The authors have submitted a potentially interesting ms about water-transported organic compounds in, among others, throughfall, stemflow, and forest floor leachates. To this purpose they have used three sites across Germany, each having stands with two tree species, namely common beech and Norway spruce.

The authors have not given any clearly stated aim but mention in the Introduction that this is the first study to evaluate the relative sizes and the chemical composition of the main flows of dissolved organic matter and organic matter in suspension. Thus, in the Introduction they give a very good motive for the study. They also present two hypotheses namely that the chemical composition differ between total organic matter and dissolved organic matter as well as between the two tree species common beech and Norway spruce. In conclusion, the study is potentially valuable and can give new information.

When it comes to presenting their study in a manuscript the authors have not done a very good job (see also below). The main lines they sketch in the Introduction dissolve in the first section in Results. In fact, the present ms gives me the idea of a project report. I would recommend that the paper is restructured (please see below). The aim(s) need to be clearly stated and a linguistic revision is needed. I would recommend that the authors should be encouraged to resubmit their paper.

My advice would be to present an ms that gives focus onto one site and a comparison between spruce and beech, alternatively to use just the beech data for three sites. Either of these alternatives may give the impression of a finished study.

Specific comments

The authors describe their sites and the measurements carried out at them. Still, when studying tables 2 and 3, figure 1, and the para beginning on line 24 on page 15092 it appears that the authors have not enough data to make a good comparison of the two tree species. With spruce missing from two out of three sites there is no good possibility to develop thoughts about hypothesis (ii).

With the background presented in the Introduction I would expect that Results and Discussion starts with the main lines, for example amounts of bulk precipitation, amounts of stemflow as well as of DOM and POM plus forest floor leachates in both types of stands, thus data giving an overview. What I see is a detailed description of C-NMR spectra, which per se is all right as a subsection but which would fit in a bit later in the paper.

Further, this section (3.1) is intended to give the properties of the compounds identified but in part it is not clear to me what is data for spruce and what is beech. The text is not clearer as regards what refers to TOM and to DOM (hypothesis i) as the authors use the terminology 'filtered' and 'unfiltered'. Earlier, in Methods and Introduction they define the fractions by particle size (less than and bigger than 45 µm). It would be better and clearer to the reader to keep to the once defined terminology.

The authors write in the hypothesis para (last para in te Introduction) that they have an hypothesis about chemical recalcitrance and allelopathic potential. That hypothesis is not even approached in the text, except for some comments to references.

The number of abbreviations and acronyms is a bit high and some terms are introduced which are not really necessary. Please remove such ones as PE for polyethylene and PU for polyurethane – they are not really used. In line 24 (last line) on p 15089 the list of 'DOM and POM in TF, SF and FF' is a bit hard on the reader.

Page 15090 lines 4 thru 6. The authors mention two species and draw a conclusion about 'coniferous' vs 'broadleaved' ?

Details

Key words are missing.

Abstract. Use the full names of the two species ideally with the Latin name after. E.g. common beech (Fagus sylvatica). Further, often chemical compounds are introduced. Thus '….carbon (C).

Line 2. Define each term separately – thus total OM (TOM), consisting of DOM and particulate OM (POM)….

Introduction.

Line 18. Introduce carbon (C) and nitrogen (N) before you use the chemical denominations.

Page 15089, line 10. Normally written C-to-N ratios

Same page line 15. What is OM in solution(?) – it seems to be in some kind of contrats to DOM in the line above? Or do you simply mean OM suspended in water?

Page 15089 lines 19 thru 25. Split up that long sentence

Page 15090, line 7 the percentages 30-40% and 17-20%. Percent of what?

Same page line 9 'time'

Methods

Section 2.1 The sentence staring with 'The three regions…..' Fits better at the end of the para

Section 2.2.

First line; 'exploratory'? That word is an adjective in English. If the authors mean 'site' please write that.

Set up should be setup.

Line 2. Five replicates from each of the three open areas?

Line 4 '…collectors of the 'same type'… same type as what?

Section 2.3

First para, first lines. Introduce the abbreviations ALB, HAI and SCH in he text

The same para, line 18 (3x3=9), respectively… why respectively?

Line 21. 'bottled'? Does that mean that you took an unfiltered sample?

Third para (p 15093) line 20. Sensitive? Do you mean 'sensitivity'

Results and Discussion

First para (p 15094) line 3 delete 'be'

Line 9 'differed remarkably' - from what?

Section 3.2, 2nd para, line 19 and 20. 'Enzyme activity' ?? It is importatnt for such a discussion to make clear what enzymes that were inhibited.

Conclusions

Last line '….research has to be extended spatially and to different tree species.' That phrasing is a bit surprising for a conclusion in this paper. Having read the Introduction and Methods I would expect that to be what this paper deals with. Three regions across Germany and two tree species.

Table 3 and in other places, e.g. Fig 1. 'unfiltered' is abbreviated nf? Why not uf?