Data Extraction Guide

“Neurological effects induced by micro and nanoplastic in fish: a systematic review and meta-analysis”

# Method

1. Look for a table of the data, if available
2. Look for the figure in the text: is there numerical data reported?
3. Look in the figure legend: Mean? SD or SEM? Number of animals?
   1. If it is not available, look in the statistical section for data format report and in the method description section for number of animals
   2. Case number of animals is reported in range, select the lower value
   3. Doubts about number of animals copy phrase of the paper on notes of the spreadsheet cell
4. Windows+Shift+S or Comando+Shift+4 or PrintScreen the figure
5. Go to **Webplotdigitizer (**[**https://automeris.io/WebPlotDigitizer/**](https://automeris.io/WebPlotDigitizer/)**)**
6. Click launch
7. Paste figure (Ctrl + V)
8. In “Choose Plot Type”, select the appropriate plot type and then click “Align Axes”
9. Follow the guidance and click “Complete” to enter the values for calibration, do not forget to mark if it is an log scale, click “OK”’
10. Click Default Dataset on the left menu if the right menu is not shown
11. Click on all the values of the central tendency measure of data points of interest by clicking on the point, adjust position at each click using the arrows of the keyboard
12. Click on all the values of positive variance of data points of interest by clicking on the point, adjust position at each click using the arrows of the keyboard
13. Click on go to “View Data”
14. Copy to clipboard
15. Paste on spreadsheet: OrganizeData
16. Cut and paste half of the data on the second column beside the first
17. Copy and paste on the data extraction table
    1. When there is a formula error on AV column check if is not number conversion formatting problem (EN ←→ PT).

# Variable keys

ID: Numerical identifier code of the article

Group key: Researchers working group identifier

DOI: Digital Object Identifier of the article from where the data are being extracted;

First\_author: First author of the article from where the data are being extracted;

Year: Year of publication of the article from where the data are being extracted;

Authors: All authors of the article from where the data are being extracted;

Title: Title of the article from where the data are being extracted;

Journal: Journal of the article from where the data are being extracted;

LABEL: Label of possible other relevant outcomes identifier during full text screening;

Size\_of\_particle\_range: Range of the size of the plastic particle used in the exposition, for fiber shame the smallest one.

Material\_of\_particle: Material of the plastic particle used in the exposition.

Shape\_of\_particle: Format of the plastic particle used in the exposition. The studies were categorized as follows:

1 Round: round or approximately round shape

2 Fiber: one dimension of the particle is at least twice as long as the other.

3 Varied: more than one shape in the same study as different groups

4 Mixed: when the shape is mixed on the same group

5 Amorphous: when there is no specific shape

Species: Species of the fish used to develop the experiments.

Sex: Sex of the animals used to develop the experiments. To better characterize the differences of protocol in regards of the sex of the animals, the studies were categorized as follows:

1 Unclear: when the sex of the animals was not mentioned.

2 FM: when male and female fish were discriminated in the experiments;

3 F:M: when male and female were included but tested and analyzed as a mixed group;

4 F: only female zebrafish were used;

5 M: only male zebrafish were used;

6 NA: for embryo, larvae and juvenile.

Administration route

Injection: when particles were directly injected in fish;

Food: when particles were delivery to fish through food;

Water: Static system: when particles are administered through water once, without water changes;

Water: Semi-static system when particles are administered through water with partial or total water changes;

Water: Continuous system: when particles are administered through water through continuous water flow;

Water: Unclear: when it is not possible to identify the water changes regime of the experiment.

Frequency of administration

Once: particles administered once through food or injection or in a static system;

Every 12h: particles administered twice a day through food or injection or partial or total water changes

Every 24h: particles administered once a day through food or injection or partial or total water changes

Every 48h: particles administered every two days through food or injection or partial or total water changes

Every 72h: particles administered every third day through food or injection or partial or total water changes

Dose/concentration

Dose/concentration unit

Developmental\_stage\_at\_the\_start\_of\_administration: Developmental stage of the animals at the star of administration;

2 Embrio: outcome assessment before hatching

3 Larva: outcome assessment between hatching and appearance of the axial skeleton

4 Juvenile: outcome assessment between appearance of the axial skeleton and reproductive age

5 Adult: outcome assessment during reproductive age

Age\_of\_animal\_at\_the\_start\_of\_administration: Age of the animals during the start of administration;

Exposure\_duration: Duration administration of particles on the fish;

Time interval between last administration of particles and test: Time interval between last administration of particles and test in days;

Developmental\_stage\_during\_outcome\_assessment: Developmental stage of the animals when the outcome assessment was carried;

2 Embrio: outcome assessment before hatching

3 Larva: outcome assessment between hatching and appearance of the axial skeleton

4 Juvenile: outcome assessment between appearance of the axial skeleton and reproductive age

5 Adult: outcome assessment during reproductive age

Age: Age of the animals during the outcome assessment;

Developmental\_stage\_during\_outcome\_assessment Age\_during\_outcome\_assessment: Age of the animals during the outcome assessment;

Category: Outcome main category

Morphometric measures

Survival

Motor function

Sensory function

Sensory-motor function

Learning and memory

Social behaviour

Sexual behaviour

Feeding behaviour

Anxiety/fear-related behaviour

Reward-related behaviour

Circadian behaviour

In vitro electrophysiology

In vivo electrophysiology

Seizure

Neurochemical outcomes

Test or Assay: Test or assay used as described on the article;

Outcome: outcome class as applied for meta-analysis;

Outcome group: identification number for the outcome;

Fig/Table: Location of the data on the article;

Group: Group description from the article.

# Values extracted or calculated

Sample Size: Number of independent observations in the group;

Mean\_Measurement: Mean value as extracted from Webplotdigitizer or directly extracted from table or text of the article;

Dispersion\_Measurement: Dispersion gross value as extracted from Webplotdigitizer;

Dispersion\_Gross\_Value: Extracted dispersion gross value from Dispersion\_Measurement or dispersion value from table or text of the article;

Dispersion\_Value\_Type: Identifies if the dispersion value of the article is STD or SEM;

Mean\_Value: Extracted mean of the group from Mean\_Measurement;

SD\_value: Standard deviation value:

If value was provided on text or table of the article as SD just copy the value of Dispersion\_Gross\_Value;

If dispersion value was extracted from plots, module of Dispersion\_Gross\_Value - Mean\_Measurement;

If the dispersion value extracted was a SEM, value on Dispersion\_Gross\_Value was multiplied by square root of sample size.