ProAnalist Counter

Systematic Counter Platform

Developed by INMAR
University of Cádiz

User Guide

Welcome to ProAnalist Counter, the digital platform designed for the systematic counting of biological samples such as planktonic or benthic organisms, cells, bacteria colonies, etc. using the subsampling technique.

This application is, in reality, a substitute for paper tally sheets and multiple counters, but in addition, it can help you see how you are doing your counts: if it is necessary to see more subsamples, count more organisms, etc.

This short tutorial will help you get to know the application.

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1. Start counting

Start by entering the Name of the sample you are going to analyze and the analyst's name. That will start a session.

Each sample is a session. Next is the subsamples or aliquots bar, where the first subsample appears active. For the first subsample, 4 counters appear by default, which will be used to count 4 different taxa. Name the counters as you like and click on plus, or minus, to add or remove organisms one by one, or on the number to add a certain amount. For ergonomic counting without taking your eyes off the microscope, you can assign keyboard shortcuts to each species. Press the assigned key and the counter will add automatically. If you need to, you can add a new counter by clicking the icon +.

2. Counter customization

The icons located on the right side of each counter allow you to change the style of the names, background color, add a background image, move them around, reset the count or delete them. You can also modify their size by dragging the bottom right corner of the counter.

3. Counting history

In the lower right corner there is an icon that allows you to see, in real time, the counts of each taxon. It is useful to remind you what was the last thing you counted after taking a break. This history will be set to 0 when a new session is opened.

4. Counting new subsamples

Now, do you work with several aliquots? With a single click you can add a new subsample . This will copy all your configured counters to a new tab reset to zero, ready for the next count. If a new counter is added in any subsample, this counter will appear in all previously created subsamples.

5. Are you leaving or staying?

The session remains open on your computer as long as you do not turn it off, restart it or create a new session. All counters and data are kept in memory.

When you finish processing your sample you can export the data to Excel or print them , using the corresponding icons. The data is exported as a matrix that you can directly use for statistical analysis.

If you want to start a new session, that is, count a new sample, click on the Reset icon in the upper right bar.

6. Counting templates

If you are going to work with several samples from the same batch, you will be interested in creating a counting template. It will save all the counters (with their characteristics) that you need to process the samples of the entire batch. This way you will avoid having to create new counters every time you start a new sample. To create a template, go to the subsample where all the counters you want to copy are located and click on the Template icon. The template will be downloaded to your computer.

To use a saved template in a new sample, click the Template icon and select the template you need.

7. Some utilities

Let's now look at some utilities.

In each counter, below the taxon name, we will find the sum of an amount. It is the number of individuals of that taxon counted so far in all subsamples. It will appear in green when 400 individuals are reached, indicating that, if the subsampling is random, it is a sufficient amount to estimate its abundance in the sample with an error of less than 10%.

The application also shows some graphs that allow us to follow the progress of the counts. Use the “View analytics” icon to see real-time graphs of the number of organisms counted for each taxon in each subsample or see the taxonomic composition of the sample.

In the distribution graph, for each taxon, the number of organisms for each subsample, the total number counted and the coefficient of variation between subsamples are observed. The coefficient of variation will be green if its value is less than 20% and red if it is greater than 20%, indicating that the associated error is still high and that more organisms of this taxon should be counted to have a good estimate of its abundance. The values of 100 and 400 organisms are also indicated, which would be necessary to count to have an error of less than 20 or 10%, respectively.

In the composition graph, the percentage of each taxon and its absolute frequency in the total sample is shown.

Another interesting graph appears when clicking on the Richness icon . Here the cumulative curve of taxa is observed, which allows evaluating the increase in the number of taxa when analyzing successive aliquots. The value of the Chao1 index is also shown, which makes an estimate of the theoretical total richness. When the cumulative curve reaches the Chao1 index, it is estimated that all the taxa in the sample have already been found.

8. Identification Assistant (AI)

Finally, if you have doubts about the identification of an organism, click on the AI ID button . You can describe the morphological characters that you think are most peculiar or upload a

microscope photo and the Artificial Intelligence will give you an idea of what organism it is and allow you to add it directly to your list.

We hope all these indications allow you to use the application satisfactorily, and above all, help you in your analysis work.

Thank you for using ProAnalist Counter.