An Easy Guide How to Operate the COSTAT
Software for Statistical analysis of Biological Sciences

Muhammad Parvaiz[1], Sikandar Khan Sherwani[2], Hasnain Nangyal[3],
Rana Kausar [4] and Aqib Sayyed[5]

[1]Department of Botany, Institute of Chemical and Biological Sciences (ICBS), Hafiz Hayat Campus (HHC),
University of Gujrat (UOG), Gujrat , Punjab, Pakistan
[2]Department of Microbiology, FUUAST University, Karachi, Sindh, Pakistan,
[3]Department of Botany, Hazara University Mansehra, Khyber Pakhtunkhwa, Pakistan
[4]Department of Biochemistry, FUUAST University, Karachi, Sindh, Pakistan
[5]Department of Botany, Abdul Wali Khan University, Mardan, Khyber Pakhtunkhwa, Pakistan

Abstract:

COSTAT is a program used for the statistical analysis of biological sciences to analyze the data. It is a DOS based software, however can also be run in Windows having system type of 32-bit operating system. To interpret the results, there is need to analyze the data by using COSTAT statistical software. The Analysis of Variance (ANOVA) is employed to analyze the data then this data is interpreted in results. There are different types of ANOVA (One way analysis of variance is a way to test the equality of three or more means at one time by using variances and two way analysis of variance is an extension to the one-way analysis of variance. There are two independent variables, hence the name two-way), and tests such as Duncan's Multiple Range Test, applicable to an experimental data. In COSTAT, Variables means number of parameters (e.g. Shoot Height, Shoot Weight, Root Height, Root Weight etc.) under study. COSTAT can analyze three factors at a time.

KEYWORDS:

COSTAT, Program, Use, Statistical analysis, ANOVA.

INTRODUCTION:

How to run program

Just copy the folder to your C:\drives (Hard disk). Do not install it. Also make a short cut to COSTAT.exe by right clicking on it and then click on "create short cut". It will create shot cut on desktop. Open COSTAT folder and click on COSTAT.exe file to run COSTAT. However, in this case your computer will ask you to attach printer because COSTAT do not save results of any test but directly print it. You have to give separate command for any test every time. To avoid this click on start menu, then click shut down. When the dialog box of shut down will be opened, click on "Restart in MS DOS mode". Please wait a while and let your computer to restart in DOS mod. The "MS DOS Command Prompt" will appear as C:\windows.On command prompt type cd Press enter. The command prompt will appear as C:\. Now on prompt type cd COSTAT. Press enter. Take care that there must be a single space between cd and COSTAT.

The command prompt will appear as C:\COSTAT. On command prompt type COSTAT. Press enter. The program will be run and main menu of COSTAT will appear.

MAIN MENU

Run the program. The main menu will be opened. On main menu the cursor will appear as +.You can move the cursor by up and down arrow keys. Move the cursor to "Load Data File", press enter. A new menu (Sub Menu) will appear.

How to make a new data file

Move the cursor to "Open New Data File", press enter. Type File Name e.g. parvaiz. Give "Number of Variables". Variable means number of parameter u want to analyze at a time (May be1, 2, 3 or 4 up to 100). Usually give only one variable and make new file for each variable. It is easy method. Press enter. Give "Name of Variable" (s) e.g. Plant height, press enter. Give "Number of Replicates" e.g. 3, 4, 5. Give "Number of Factors", press enter. Give "Name of Factor 1" e.g. salinity. Give "Number of Treatments" for factor 1, with a minimum of 2 treatments. Give Name of Factor 2 and 3 and Number of Treatments for each variable press enter. A Data File will be opened. Put data against each replicate for each factor. When data is complete, press Escape. Move cursor to "Done, Return to Program Menu", press enter. Move cursor to "Save Changes", press enter. Conform File Name, press enter. Move cursor to "Back up" or "Overwrite", press enter. The main menu will appear again. Move cursor to ANOVA or Any Other Test and then press enter. Select Statistical Design. ANOVA Table will appear. Remember, COSTAT do not save results of ANOVA but it directly prints it. Therefore you must print the results or simply note them by hand. Select DMRT Test. Select Level of Significance (5% or 1%), press enter. DMRT will be applied only for factors but not for interaction. COSTAT stores data files in the same folder for where the program is running. Do not delete or move data files from this folder directly.

Load existing data file

Move cursor to "Load data file", press enter (Main menu). Move cursor to "Load data file" (sub menu). All files contained in the folder will appear on the top left corner of the screen. Type file name you want to load. As an alternative method, press enter two times after selecting Load Data File from COSTAT sub menu. The cursor will move to existing data files. Select data file by moving cursor and press enter. Select ANOVA (or any other test) and proceed in the same manner.

Delete existing file

Select Sub Menu. Select Delete. Type file name on command prompt and then press enter OR after selecting delete simply press enter two times. The cursor will appear on preexisting files. Select file to be deleted by cursor movement Press Enter. Take extreme Care while selecting and deleting files as deleted files can never be restored (The deleted files do not go to recycle bin).

Edit data file

On the COSTAT main menu select editor by moving cursor up and down with up and down arrow key. COSTAT submenu will appear select "Load data file". Press Enter to load file. Type file name directly or simply press Enter. The cursor will appear on preexisting data files. Select file you want to edit. Press Enter. The file containing data will be opened. You can Change the value of the desired replicate. When completed editing, press Escape to go to Editor Commands. Select "Done Return to Program Menu". Select Yes or No from Save Changes Commands to save changes. Verify file name or change it by moving cursor to file name and change it. Select Backup for backup file or otherwise Overwrite to overwrite the existing file. You can also Rename the file from this menu or select Escape to go to edit file. Press Enter. You can now proceed for ANOVA.

Change structure of data file

Insert (Add New Variable, Factor or Treatment)

Select file the structure (means number of variables, treatments, replicates etc.) of which is to be

changed and go to Editor commands as mentioned above. Go to Insert and press Enter. Select Variables to insert new variables (parameters), Replicates, to change number of replicates, Factor (1st or 2nd) to change number of treatments or New Factor, to add a new factor specify between which treatments you want to add a new factor. Give Name of new variable and number of treatments for new variable. Select Escape to enter new values against the corresponding treatment. When completed editing, press Escape to go to Editor commands. Select "Done Return to Program Menu". Select Yes or No from save changes commands to save changes. Verify file name or change it by moving cursor to file name and change it. Select Backup for backup file or otherwise Overwrite to overwrite the existing file. You can also Rename the file from this menu or select Escape to go to edit file. Press Enter. You can now simply proceed for ANOVA.

Erase (Delete Variable (s), Factor (s) or Treatment (S).

Select file the structure (means number of variables, treatments, replicates etc, of which is to be changed and go to editor commands as mentioned above. Go to Erase and press Enter. Go to Variables to delete variables (parameters), Replicates, to change number of replicates, Factors (1st or 2nd) to change number of treatments or   Factor, to delete a factor. Select Escape to enter new values against the corresponding treatment. When completed editing, press Escape to go to Editor Commands Select "Done – Return to Program Menu". Select Yes or No from save changes commands to save changes. Verify file name or change it by moving cursor to file name and change it Select Backup for backup file or otherwise Overwrite to overwrite the existing file. You can also Rename the file from this menu or select Escape to go to edit file. Press Enter. You can now simply proceed for ANOVA.

View Current Structure of Data File

Select file the structure (means number of variables, treatments, replicates etc.) of which you want to view and go to Editor Commands as mentioned above. Go to change Structure/equations and press Enter.
Select Structure and press Enter, Layout of the file structure will be displayed. You can view the details of structure by pressing enter repeatedly. The details will be displayed below the dotted line. You may Change the Name of variables and factors only but cannot change their number or number of treatments. For this purpose you have to go to insert command to add any variable, factor or treatment etc. OR go to erase command to delete any variable, factor or treatment etc.

Press Escape to go to data file and make changes if necessary
When completed editing, press Escape for Editor Commands
Select "Done – Return to Program Menu"
Select Yes or No from Save changes commands to save changes
Verify file name or change it by moving cursor to file name and change it.
Select Backup for backup file or otherwise Overwrite to overwrite the existing file.
You can also Rename the file from this menu or select Escape to go to Edit file
Press Enter
You can now proceed for ANOVA.

ANOVA

Make a new data file by Open new data file command OR select an existing file by Load Data File command.
The main menu will appear. The name of selected file will appear on top right corner of the screen.
Select ANOVA and press Enter [1-3].

Duncan's New Multiple Range Test (DMRT)

Select file to be analyzed and go to ANOVA command and proceed for ANOVA test. When you will complete the ANOVA test you will be asked to proceed for DMRT or not
If you want to proceed for DMRT, proceed as guided.

Correlation and Standard Error

Make a data file by selecting "Open New Data File". Take care that all variables (parameters) of

which correlation is to be detrained must be given in the same file. If you want to perform ANOVA test and determine correlation of all pairs of variables, simply make a file containing all variables in the same file. You can do so by giving number of variables more than one while making a new file or by changing the number of variables by Editor command. From COSTAT main menu, select Correlation and press Enter. Select All Pairs of Variables and press Enter. Select Correlation [Corr. (r)] or Standard Error [S E] and press Enter. Press any key to Continue Press any key OR Escape to return to program menu.

Standard Deviation and Variance

Select data file by Load Data File command and press Enter
The main menu will appear. Select Descriptive Statistics and press Enter
Select Calculate Statistics For; 1 Variable or All Variables   and press Enter
Normally select 1 variable
Calculate Statistics for Each Replicate also; select Yes and press Enter
Select Standard Deviation (Sta. Devision) or Variance and press Enter
Select variable for which standard deviation or variance is to be calculated and press Enter.

Statistical Tables

On the COSTAT main menu, go to Utilities and press Enter
Select Statistical Table and press Enter
Select the table and press Enter
Proceed as directed

Random Numbers

On the COSTAT main menu, go to Utilities and press Enter
Select Random numbers and press Enter
Proceed as directed

On or Off Output to Printer

From the COSTAT main menu, go to Global Setting and press Enter
Move cursor to Output to printer
Press enter once for No (off printer) OR again press enter once for Yes (on printer)
If you have selected No your printer will not print ANOVA results.
If you desire to print results select Yes by selecting output to printer and pressing Enter once.

How to quit COSTAT

Press Escape and then select Quit. Press Enter
If running in Windows, simply Quit COSTAT by clicking Close button
As windows cannot shut down DOS based programs automatically, a dialog box will appear. You may need to click Yes to quit program or No to restore program

Returning to Windows
If you are running COSTAT in MS DOS mode

On command prompt type Exit and press Enter
Wait a while to load windows

If you are running COSTAT in windows

Simply close program by clicking Close button. As windows cannot shut down DOS based programs automatically, a dialog box will appear. You may need to click yes to quit program or No to restore program.

Website : http://reviewofprogress.org/

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