

SHORT COMMUNICATION

PROGRAM FOR DRAWING BAR GRAPHS ON IBM PERSONAL COMPUTERS

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Abstract: A simple program for drawing Bar graphs on IBM Personal computers is described here. This program is written in BASIC language and is user friendly. The program allows the operator to plot the bars with standard error, adjust the spacing between the bars and save the bar in a floppy disk. Legend can also be added at appropriate places in the graph. In the graphic mode, a hard copy can be obtained from a dot matrix printer using print screen command.

Key words: basic program for bar graph bar graphs on IBM PC

Bar graphs are one of the commonest method by which scientific data is presented, both in publications and during conferences. We have developed a simple computer program to do this job more conveniently and in less time than is possible manually. Although several commercial software packages have this facility, only a few plot the standard deviation/standard error in the bars. Keeping this in mind, a user friendly program was written in BASIC language. This program has been used successfully in our department for two years. The listing of the program is given below.

```
10 REM Bar-graph program (C) N. Anandh Kumar
1988
20 REM Developed in the Department of Physiology,
PGIBMS,
30 REM University of Madras, Taramani, Madras
600 113, India
40 ON ERROR GOTO 380
50 MSX = 0 : CLS : SCREEN 1 : KEY OFF
60 INPUT "Do you want to load a graph (Y/N)";
Z$
70 IF Z$ = "Y" OR Z$ = "y" THEN 300
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80 INPUT "No. of divisions of Y-axis";YD
90 INPUT"Starting value of Y-axis"; YS
100 INPUT"Ending value of Y-axis"; YE
110 INPUT"No. of bars"; NB
120 INPUT"Spacing between bars. Try 40";SP
130 GoSUB 340: YM = YE-YS:YN = 150/YM
140 IF MSX = 1 THEN LOCATE 22,1:PRINT
YS:LOCATE 4,1:PRINT YE
150 BT = 60 + SP: FOR I = 1 TO NB: IF MSX
= 1 THEN 180
160 LOCATE 1,1: PRINT" Input data value"; I;
Standard error"
170 GOSUB 330: INPUT DV(I), SV(I)
180 ER = SV(I)*YN:RT = DV(I)*YN:TR =
170-RT
190 LINE (BT, 170) - (BT + 30, TR), , B: LINE
(BT + 15, TR+ER) - (BT + 15, TR-ER)
200 LINE (BT + 7, TR+ER) - (BT+23, TR+ER)
:LINE (BT+7, TR-ER) - (BT + 23, TR-ER)
210 BT = BT + SP: NEXT I
220 GOSUB 330: INPUT "Want to change spacing
between bars (Y/N)";Z$
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230 IF Z$ = "Y" OR Z$ = 'y' THEN 240 ELSE
250
240 GOSUB 330: INPUT "Give new spacing"; SP:
MSX = 1: GOTO 130
250 GOSUB 330: INPUT "Do you want to save
this graph (Y/N)";Z$
260 IF Z$ = "Y" OR Z$ = "y" THEN 270 ELSE
END
270 GOSUB 330: INPUT "Title for graph";
TIT$:OPEN "O", 1, TIT$+".DTA"
280 WRITE #1, NB:FOR I = 1 TO NB; WRITE
#1, DV (I), SV (I); NEXT I
290 WRITE #1, YD, YE, SP: CLOSE #1 : END
300 INPUT "Title for graph"; TIT$:OPEN "I", 1,
TIT$+".DTA"
310 INPUT #1, NB:FOR I = 1 TO NB:INPUT #1,
DV(I), SV(I):NEXT I
320 INPUT #1, YD, YS, YE, SP: CLOSE #1:
MSX = 1:GOTO 130
330 LOCATE 2, 1: PRINT SPACES (80) : LO-
CATE 2, 1: RETURN
340 CLS: SCREEN 2:YZ = 150/YD
350 LINE (60, 170) - (580, 170): LINE (60, 170)
- (60, 20)
360 FOR A = 170 TO 20 STEP -YZ
370 LINE (57, A) - (63, A): NEXT A: RETURN
380 IF ERR = 53 THEN PRINT "No graph by
name";TIT$;" found.":RESUME 300
390 REM _____ end of program_____

```

The program may be used as follows:

If you have a PC-XT load the program in the hard disk in Basica directory of your computer, save with a name (eg BAR). If you have only a PC with two disk drives start the computer with DOS, type graphics and then load basica in to the RAM and then load the program and save with a name (eg BAR).

To use the program, go to graphics mode from DOS, then load the program and run the same. The program will ask whether you want to load a

graph. If the answer is yes, type "Y". If you are going to start a new graph simply press return or type "N". When you are working with hard disk it is advisable to store and retrieve the bar graphs from a floppy disk operating in A or B drives. In that case you type a: (name of the graph) or B: (name of the graph).

When you have answered "N" to start a new bar diagram, the computer will ask a series of questions to scale the Y-axis, adjust the spacing between the bars and to determine the number of bars to draw. Answer these questions. After this, the program will ask input data value and the standard error.

Type these values one after the other with a comma in between (eg 4, 1). Repeat the same for the required number of bars. When you have given the data for the predetermined number of bars, the program will ask you whether you want to change spacing between the bars. If you want to spread the bars a little apart give the new value (e. g. 60). The program will rearrange the bars a little apart. You can repeat this process any number of times till you are satisfied. Once the spacing is finalized, type "N". The computer will then prompt whether you want to save the graph. If you want to save the graph type "Y". Then it will ask the title of the graph. Give a short title (not more than 6 letters) and press RETURN. The graph will be stored as data with the extension DTA. If you are working with hard disk and want to store the graph in a floppy in A drive type A: (title of the graph).

After storing, or after you have indicated that you are not going to store the graph, the computer will come out of the program and OK will be displayed on the monitor. Once OK sign has appeared, move the cursor over the displayed text lines and erase them using "Del" key. After all the unnecessary lines are deleted from the screen, you can move the cursor to the appropriate locations and type the caption, X axis parameters, statistical significance etc.

When the graph is ready for printing move the

cursor to one corner of the screen and use print screen command (SHIFT and PRISC) to get a hard copy of the graph from a dot matrix printer. The graph can also be photographed

directly from the screen for projection purposes.

An example of a graph plotted using the above programme is shown in Fig. 1.

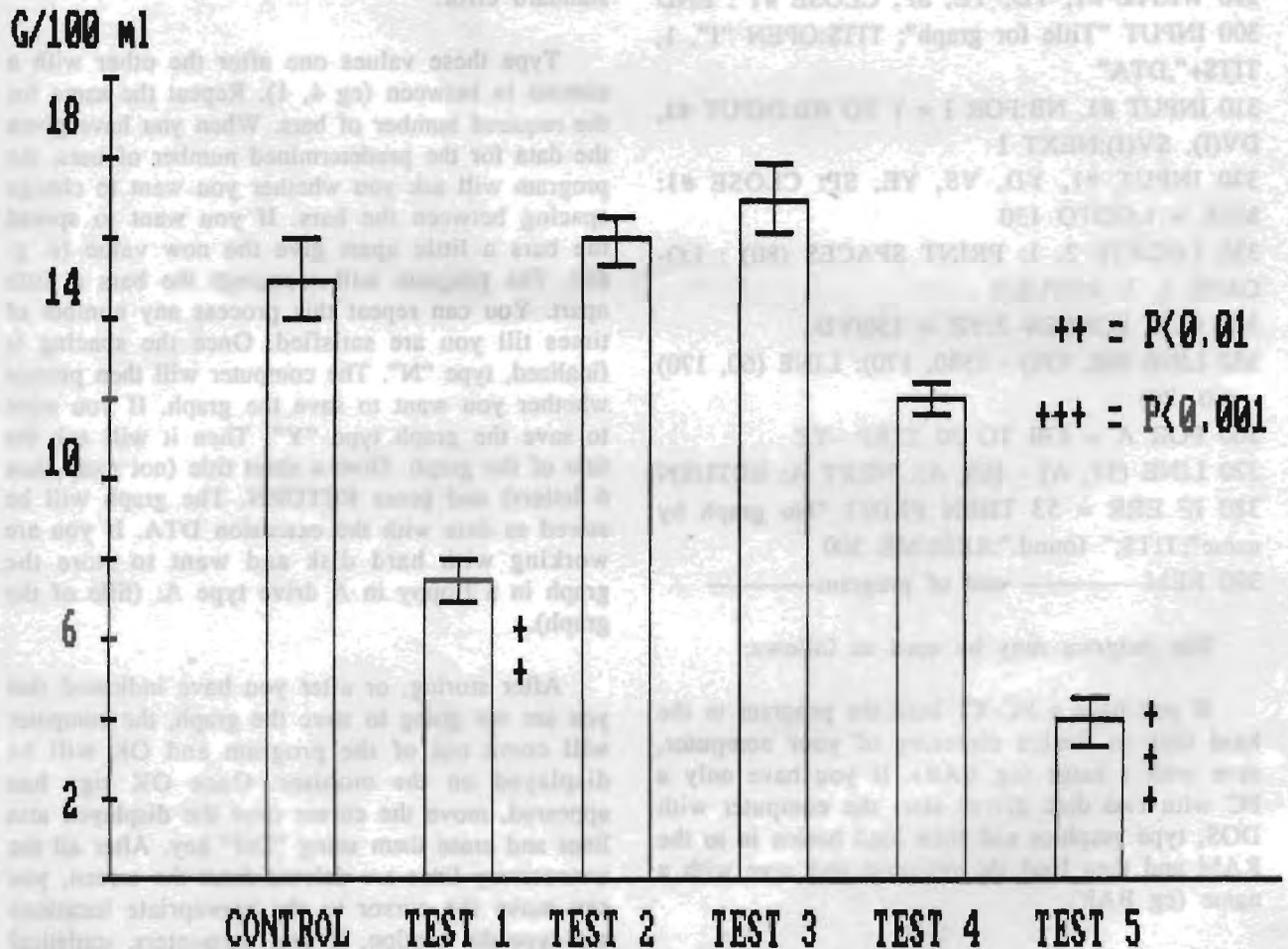


Fig. 1 : Haemoglobin level in certain experimental conditions.

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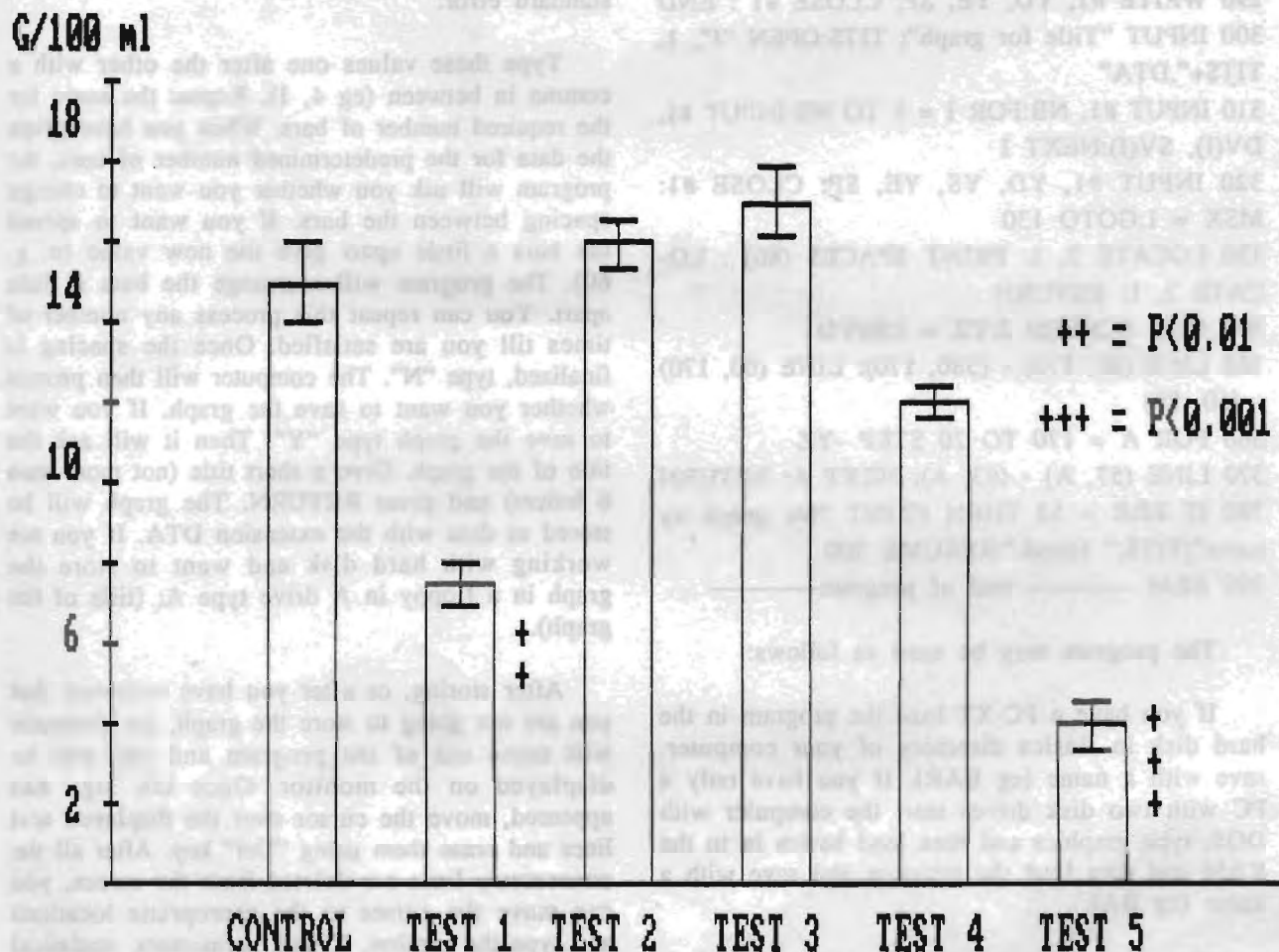


Fig. 1 : Haemoglobin level in certain experimental conditions.