

CHAPTER 10

GLUCOSE LOWERING PROPERTY OF HERBS

Regarding the antidiabetic property, glucose contents of the selected herbs was checked. A lowering trend in glucose concentration was found. For this purpose aqueous and acid extracts of selected species were prepared.

Clinical method was selected for this study in which glucose content of the sample was complexed by O-Toluidine reagent and monitored with spectrophotometer in visible range. During the study of water extracts in GS, CI, EC, PL and HR, concentration of glucose lowered to maximum extent. These samples were prepared by the proper treatment of the leaves of the species. TF and AS also showed a considerable lowering in glucose concentration, but TF was in seeds form and AS in cloves form. In water extract of EJ, concentration of glucose remains unchanged (Table 10.1).

In *adiantum capillus veneris*, decrease in glucose contents was about 45%.

When acid extract was studied with the same method, only GS, SH, EJ, MC and CI showed decrease in concentration and among these EJ was found to be the best (Table 10.2). In 1g of EJ and specially in MC, lowering in glucose concentration observed to a little extent in acid extract but it was known that both of them are generally taken as food and a large amount is thus consumed which may decrease a reasonable amount of sugar.

During comparison, it was observed that water extracts of these samples are found more effective than acid extracts. Only for EJ, SH and MC, it was found that their acid extracts were also effective. It means that these should be eaten as a whole during use for hypoglycemic purpose (Fig 10.1).

EC, HR, and PL, which are not used as antidiabetics, according to the results were found to be very effective, but according to the information obtained in chapter 8, they have high concentration of toxic metals, therefore are not suitable for medicine.

Adiantum capillus veneris also found to be very effective when taken as its water extract but its acid extract does not show a remarkable response.

DISCUSSION

When these results were checked and compared with previous results related to the metal content, it was found that GS and CI had very high metal concentration and therefore showed high glucose lowering effect, but all the species which have a combination of Zn, Mn, Cr and Cu, were assumed more effective. SII and MC does not have manganese and they showed least fall in glucose concentration. It seems that manganese is most effective metal. On the other hand EJ and MC are best known for diabetic cure and both have a combination of Cr and Cu (Table 7.7).

In CI, PL, EC and HR high metal concentration was found but they might be toxic because they also have high toxic metal contents.

Table 10.1

**Glucose Estimation in Samples by O-Toluidine Reagent Method
in Acid Extract**

Sample ID	Absorbance at 630 nm.			% of redction
	Sample + Only(A)	sample + 0.208(B)	Sample + Glu	$(1-B/A) \times 100$
ACV	0.4790	0.6870	0.6610	3.78
MC	0.3440	0.5520	0.5240	5.07
EJ	2.2120	2.4200	1.6490	31.86
GS	0.1330	0.3410	0.2980	12.61
AS	2.3880	2.5960	2.9910	-15.22
TF	0.0070	0.2150	0.6750	0.00
PG	2.6890	2.8970	3.5720	-23.30
SH	1.7110	1.9190	1.7870	6.88
CI	0.9570	1.1650	1.1040	5.24
EC	0.5460	0.7540	0.7410	1.72
PL	0.8930	1.1010	1.2200	-10.81
HR	0.2540	0.4620	0.5000	-8.23

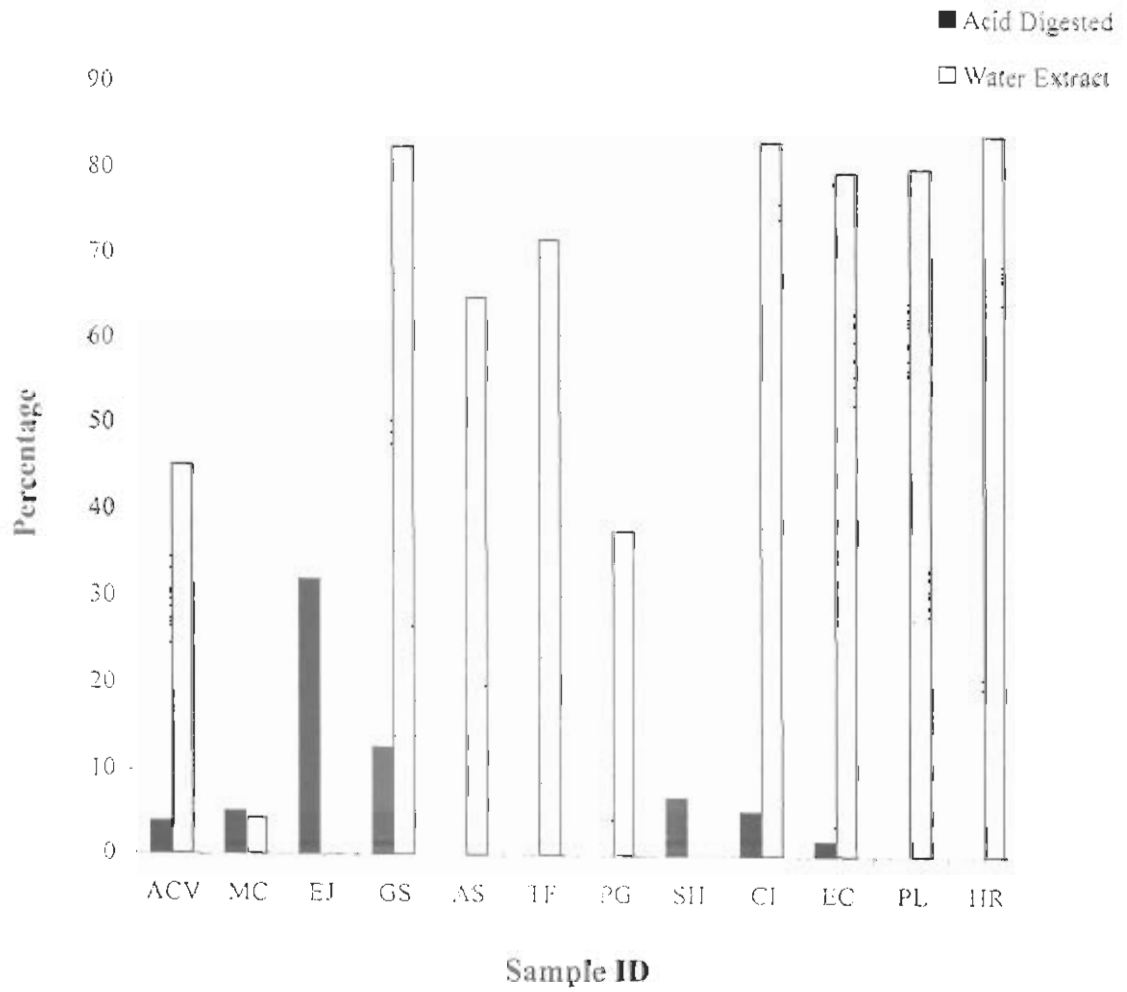
Table 10.2

**Glucose Estimation in Samples by O-Toluidine Reagent Method
in Water Extract**

Sample	Absorbance at 630 nm.			% of reduction
ID	Sample + Only(A)	Sample + 0.208(B)	Sample + Glu	$(1-B/A) \times 100$
ACV	0.0560	0.2640	0.1450	45.08
MC	0.3610	0.5690	0.5450	4.22
EJ	1.5280	1.7360	1.9500	-12.33
GS	0.0270	0.2350	0.0410	82.55
AS	0.2850	0.4930	0.1730	64.91
TF	0.1660	0.3740	0.1060	71.66
PG	0.1590	0.3670	0.2290	37.60
SH	0.0670	0.2750	0.3040	-10.55
CI	0.2560	0.4640	0.0780	83.19
EC	0.0480	0.2560	0.0520	79.69
PL	0.0440	0.2520	0.0500	80.16
HR	0.0170	0.2250	0.0360	84.00

FIGURE 10.1

**Comparison of Glucose Lowering effect of
Water and Acid Extract of Samples**



CONCLUSION