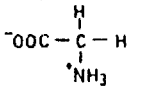
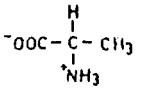
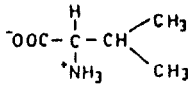
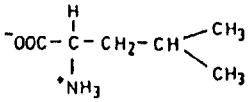
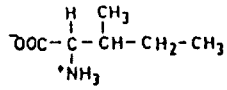
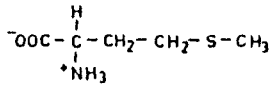
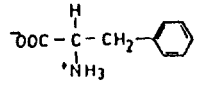
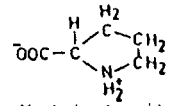
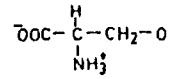
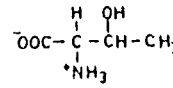
Structure	Name	Abbreviation[a]	pK_{a_1} (α-Carboxyl)	pK_{a_2} (α-Amino)	pK_{a_3} (side chain)	pI
Nonpolar side chain						
	Glycine	Gly(G)	2.3	9.6		6.0
	Alanine	Ala(A)	2.3	9.7		6.0
	Valine	Val(V)	2.3	9.6		6.0
	Leucine	Leu(L)	2.4	9.6		6.0
	Isoleucine	Ilu(I)	2.4	9.7		6.1
	Methionine	Met(M)	2.3	9.2		5.8
	Phenylanine	Phe(F)	1.8	9.1		5.5
	Proline	Pro(P)	2.0	10.6		6.3
Neutral polar side chain						
	Serine	Ser(S)	2.2	9.2		5.7
	Threonine	Thr(T)	2.6	10.4		6.5

Figure 1 Structures, pK_a values, and pI values of the 20 common amino acids.

2. Removal of Urea and Salts

The addition of a trace amount of urease (2) provides the best results for urine samples, whereas salts can be conveniently removed by passing the sample (3) through a cation-exchange resin column.

3. Enrichment of Amino Acids in Urine

Aliquots of urine (10 mL) are lyophilized and then extracted with methanol–1 M HCl (4:1) (1 mL) and centrifuged. Then 20 μL of supernatant liquid is applied to the thin layer (4).