



## SUMMARY

In the present study the project undertaken was aimed at the exploration of locally isolated bacteria for the production of amino acids and enhancement in amino acid production by using different mutant strains. For this purpose bacteria were isolated from soil samples collected from sugar factories area in pattoki and Lahore. A total 20 strains were isolated of which 9 produced significant amount of methionine, cysteine, valine, glycine, tryptophan, tyrosine, glutamic acid, and lysine in different fermentation media based on glucose, urea, molasses and vitamin. Amino acids are the fundamental building blocks for proteins and nutritionally important key element, are not only important biologically but they have copious industrial arduency. The major applications of amino acids include food industry (60%), feed additives (31%) and in the chemical, medicines and cosmetics industry as starting material (4%). Amino acid are not commercially important but also play significant role in the control of metabolism in living organisms.

The amount of glutamic acid produced by wild strain WA3 in glucose base medium MF4 (Table 3.2) was 4.0 g/litre, 5.4g/litre, 6.2 g/litre and 6.1 g/litre (Fig 4.1) at 24, 48, 72, and 96 hours incubation under optimum condition respectively in media. Which is enhanced by EMS mutants in the same medium was 6.0 g/litre, 8.0 g/litre, 9.3 g/litre, 8.3g/litre (Fig 4.1). during the above mentioned incubation period respectively. The composition of this medium included, Glucose, 27g,  $K_2SO_4$ , 20g,  $MgSO_4 \cdot 7H_2O$ , 5.0g,  $MnSO_4 \cdot H_2O$ , 0.4g,  $(NH_4)_2HPO_4$ , 20g  $NH_4H_2PO_4$ , 20g,  $FeSO_4 \cdot 7H_2O$ , 0.2g (Table 3.2). The amount of methionine produced by wild in molasses base fermentation medium was 3.0 g/litre, 5.3 g/litre, 6.3 g/litre and 9.3 g/litre during 24 to 96 hours. Which is improved by UV irradiate mutants was 5.2 g/litre, 5.9g/litre, 6.8 g/litre, 6.9 g/litre and by sodium azide mutant is 7.1g/litre, 7.3g/litre, 7.5g/litre, 6.0 g/litre and by ems mutant was 4.5 g/litre, 5.3 g/litre, 7.2 g/litre and 9.5 g/litre and mutant derived from ethidium bromide was 3.5 g/litre, 4.2g/litre, 4.7 g/litre and 5.9 g/litre (Fig 4.3). The composition of this medium is Molasses, 20g,  $K_2HPO_4$ , 0.5g,  $(NH_4)_2SO_4$ , 3.0g, Pepton, 10g, Yeast extract, 2.0g,  $KH_2PO_4$ , 0.5g,  $MgSO_4 \cdot 7H_2O$ , 0.2g (Table 3.6).