



Summary
and Conclusion

5. SUMMARY AND CONCLUSION

This study was conducted on some horticultural crops by products such as apricot and mango kernel seeds to evaluate their chemical and biological quality as alternative source of protein material. Chemical composition of apricot and mango kernel seeds obtained from Kaha Company for Food Preservation, Kaha, Kalubya Governorate, Egypt.

Physicochemical properties, fatty acids, of apricot and mango kernel seeds oil were identified and determined by gas liquid chromatography. Elimination of anti-nutritional factors from apricot and mango kernel seeds by-products were carried out. Apricot and mango kernel seeds are studied. Beside nutritional evaluation of apricot and mango kernel seeds meal and their protein isolate were carried. The obtained results could be summarized as follows:

1. Chemical composition of apricot and mango kernel seeds:

The chemical composition of apricot and mango kernel seeds were determined, data show that, apricot and mango kernel seeds contained 8.9-9.4% moisture, total lipid 48.15-10.31%. Crude protein 25.14-7.23%, total carbohydrates 16.3-73.38%, crude fiber 2.45-2.95% and ash content 5.51-5.13%, respectively. While defatted meal had 44.1-13.75% crude protein, Total carbohydrate 28.2-75.67%. Crude fiber 4.5-5.21% and ash content was found to be 4.1-3.65% for defatted meal respectively.

Total cyanogenic in apricot and mango kernel seeds and meal contained 0.18-0.05, 0.25-0.09%, respectively. Total phenolic compounds content of apricot and mango kernel seeds and defatted flour were 0.2-6.2, 0.42-4.1%, respectively. Phytate content was found to be 0.14-1.95, 0.25-2.9% for apricot and mango kernel seeds and defatted meal, respectively

Trypsin inhibitor in apricot and mango kernel seeds and defatted flour contained 0.00-4.9, 0.00-5.3%, respectively

Since, apricot and mango kernel seeds meal can be considered as a rich source for protein after removing anti-nutritional factors from the meal.

2. Physicochemical properties and fatty acids of apricot and mango kernel seeds oils:

- a- From the data presented in this study, physical properties of apricot and mango kernel seeds oils could be noticed that refractive index of apricot and mango kernel seeds oil are 1.47139-1.4620, specific gravity were 0.9136-0.8980, respectively
- b- The chemical properties of apricot and mango kernel seeds oils as follow: Acid value were 1.1-4.1, saponification value were 190-192, peroxide value were 0.3-2.9 and iodine value were 102-78, respectively.
- c- Gas liquid chromatography (GLC) was used for determining fatty acids of apricot and mango kernel seeds oils. The obtained results show that apricot and mango

kernel seeds seed oil contains high amount of unsaturated fatty acid 96.11-86.31% of total fatty acids.

3. Elimination of toxic compound of apricot and mango kernel seeds meal

Several processes, including soaking in tap water, sulphite and heating treatment have been investigated for detoxification. The treatment with soaking in water and sulphite caused a gradual decline in all anti nutritional factors effective in removing 44-72% polyphenol, 16-40% phytic acid and 20-55% HCN and the treatment with soaking in water and heated gave the highest removal of polyphenols from kernel meals, while Soaking mango seed kernels in water and sulphite effective in removing 35-63% of polyphenol 41-60% trypsin inhibitor and 22-47% phytic acid.

4. Effect of pH on protein isolate from apricot and mango kernel seeds meal

The maximum apricot and mango kernel seed protein extraction was achieved at pH 10.0 and the percentage of extracted protein was 90.92% while at pH 4-5 (Isoelectric point) extracted protein reached its lowest value.

5. Amino acids composition of apricot and mango kernel seeds

Glutamic and aspartic acids are the most abundant amino acids in apricot and mango kernel protein (18.4-19.62% and 11.3-9.21%) followed by arginine (8.6-7.84%); cystine and

methionine contents were found to be in minimum quantities 0.43-0.48% and 0.95-1.15% respectively. However, the total essential amino acids content were 30.82-33.86%, respectively. Comparing to total amino acids.

6. Chemical composition of biscuits produced

It was found that, ether extract, fiber and ash increased with increasing the different levels of mango seed kernels meal. While crude protein and total carbohydrates decreased with increasing the level of mango seed kernels or defatted apricot seed kernels meals levels

7. Organoleptic evaluation of biscuits produced:

The obtained data could be noticed that supplemented with 5% mango seed kernels or defatted apricot seed kernels meals to soft wheat flour (72% extraction rate) produced biscuits with average grade of like very much for all the evaluated attributes without significant difference ($p > 0.05$) compared to control. In spite of, addition of mango seed kernels meal up to 10% showed significant decrease ($p < 0.05$) in some sensory attributes of biscuits, average grade of all quality attributes were greater than 7. This indicates that the produced biscuit with 10% defatted mango and apricot seed kernels has like moderately quality grade.