SUMMARY AND CONCLUSION

- The chemical constituents of the selected legumes indicated that the moisture content was lower in the soybean than that of the peanut and broad bean samples. However, soybean was characterized by higher levels of protein while peanut was characterized by higher content of ether extract.

- The identified amino acids of the soybean and peanut were characterized by a higher content of glutamic acid followed by aspartic acid and leucine in the second and third orders. Similar findings were noticed for the amino acids of the broad bean but arginine and leucine followed the glutamic acid in descending order. Soybean was characterised by higher content in all the essential amino acids, especially lysine. Broad bean showed the lowest content in individual and total essential amino acids.

- The chemical scores were used as one of the criterion of evaluating the samples under investigation. Methionine (which showed the lowest percent with regard to the other tested amino acids) was the limiting one.

- The scope of the study also includes a technological comparison between the three investigated legumes. Such trend was considered to see to what extent soybean could replace both of the peanut and broad bean in some popular diets, i.e. Tamiah, Medamis and roasted samples. The results showed that the moisture content of the caked soybean (Tamiah) was less than that of the stewed soybean (Medamis) and both of them represented 12.63 and 15.32 times that of the raw soybean. On the other hand, the roasted soybean was characterized by a low level of water content.

- With respect to the protein and oil contents of the products, soy products came in the first order when compared with the corresponding items of broad bean or peanut. However, the lower sugars content of the roasted soybean could be attributed to the dehulling process. On the other hand, the decrease in carbohydrate content of the stewed soybean was attributed to the loss of some soluble carbohydrates through periods of stewing.

- A comparison was carried out between the amino acids composition of the broad bean, soybean and peanut

products to investigate the influence of processing me-
thod on the amino acids pattern. For instance, the
amino acid content of the soybean were reduced as a fun-
ction of caking process i.e. through making Tamiah, with
the exception of the amino acid tryptophan.

- The difference between the pattern of the amino acids of the roasted peanut and the roasted soybean was mainly due to the method used for manufacturing the two samples. Soaking process resulted in an increase in the amino acids content of the soybean before roasting i.e. in caked samples. The dehulling process and roasting tempera-
ture minimized the level of the amino acids in the same sample of roasted soybean.

- Tamiah, Medamis and roasted samples produced from soybean was found to contain a much higher level of essential amino acids than similar products based on pea-
nut and broad bean. Such results confirm the view that soybean may be preferable than both peanut and broad bean for making the popular common diets predominated in Egypt.

The essential amino acid index was higher for the soybean products, namely, (caked and stewed products) than the corresponding items prepared from broad bean. On the contrary the essential amino acid index of the roasted soya was found equal to that of the roasted peanut.

- Infrared analysis successeded in the discrimination between broad bean, peanut and soybean products; since the obtained fingerprints of the recipes were highly characterized by the general configurations of such samples.

- With respect to the electrophoretic patterns of protein from the processed soybean, peanut and broad bean, data indicated that the technological method used for making caked (Tamiah), stewed (Foul Medamis) and roasted samples reduced the number of isolated bands in all samples especially in the stewed soybean and caked broad bean . Such trend could be attributed to the denaturation of protein as a function of some steps of processing.

However, X-ray analysis of the processed samples realized a distinctive effect on the overall fingerprint of the investigated legumes and their products. There are specified "d" spacing that characterized individually the raw soybean, peanut and broad bean samples. Several angles that dominated in the raw samples were shifted and/or disappeared as a function of processing. This means that methods of manufacturing the caked, stewed and roasted soybean modify the plates of the biopolymer structure of the samples. Similar findings were noticed for peanut and broad bean.

- The roasting temperature method as well as the heat treatment upon the preparing stewed sample resulted in a higher precentage inhibition of trypsin inhibitor. However, the obtained results proved that the method used for preparing soybean products namely caked soybean, stewed soybean, and roasted soybean had reduced urease activity.

- The three main indices namely color, taste and texture were organoleptically evaluated for the

items produced from soybean, broad bean and peanut. The overall acceptability of the samples under investigation clarified some samples as fancy grade i.e. the stewed broad bean and roasted peanut, and others as extra standard i.e. the caked soybean, caked broad bean, stewed soybean and roasted soybean.