

PREPARATION OF COMPOUNDED SOUP POWDERS FROM SOME DEEP FAT FRIED VEGETABLES

by

B. S. Bhatia, K. G. Nair, J. V. Prabhakar and Girdhari Lal
Central Food Technological Research Institute, Mysore

ABSTRACT

In an earlier paper¹ preparation of compounded soup powders from vegetable bases dried in cross-flow hot air cabinet drier or vacuum shelf drier has been reported. Present communication deals with further simplification of drying procedure by deep fat frying in the preparation of some bases required for use in the compounded soup powders. Beans and peas which are rich sources of protein are particularly suitable for the preparation of highly nutritious soup powders and have been used in this study.

Experimental

Peas, field beans (*Dolichos lab lab*), lima beans and broad beans available in the local market were shelled by hand, and were graded² and used for the preparation of bases for soup powders. Beans were blanched in boiling 1 per cent sodium bicarbonate solution for 4 minutes and washed thoroughly in running cold water to remove the cuticle and sticking alkali. Blanching helped to remove the bitterness of beans and improved their frying quality. Peas were fried without blanching. Other components used in the preparation of soup powders were corn starch, skim milk powder, common salt, spices and monosodium glutamate.

Results and Discussion

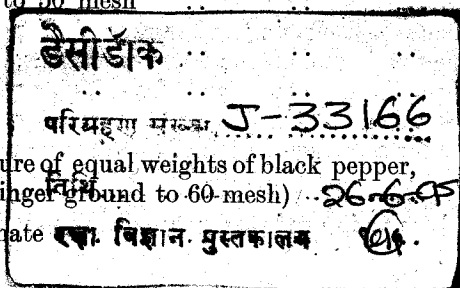
Preparation of dry bases by deep fat frying—After various trials frying conditions were standardised as follows³: Frying in hydrogenated groundnut oil at a put-in temperature of 190°C take out temperature of 175°C, frying time of 5—9 minutes and oil to material ratio of 5 : 1. The fried products were powdered to pass through 50 mesh sieve and used as bases for soup powders.

Reconstitution—Reconstitution quality is of prime importance in fried vegetables meant for preparing soup powders. Hence, study of the water relations of the fried field beans, lima beans, broad beans and peas was made. Ten gram batches of the products were steeped into 100 ml. of boiling water and the boiling continued. At the end of 2, 3, 5 and 10 minutes intervals, the water was drained off, the product gently wiped with a filter paper, weighed and percentage of water absorbed calculated. The results are given in Table 1, which show that the fried products could be easily reconstituted in about 3 minutes in boiling water except in the case of broad beans which took more than 5 minutes. After powdering to pass through 50 mesh sieve all these fried bases could be reconstituted in less than 3 minutes in boiling water.

Recipe

As a result of various trials and organoleptic evaluations the following recipe was developed for the preparation of compounded soup powder from the deep fat fried bases—

	lbs.
Fried base from peas, field beans, lima beans or broad beans ground to 50 mesh	10.00
Corn starch	2.00
Skim milk powder	2.70
Common salt	2.40
Mixed spices (Mixture of equal weights of black pepper, caraway and ginger ground to 60-mesh)	1.00
Monosodium glutamate	0.25



For reconstitution 12 times dilution with water was required.

TABLE I—Reconstitution of fried products in boiling water (Product-Water ratio 1:10)

Time in minutes	FIELD BEANS			LIMA BEANS			BROAD BEANS			PEAS		
	Weight (gms)	Increase in wt. (gm)	Moisture Absorption %	Weight (gms)	Increase in wt. (gm)	Moisture Absorption %	Weight (gms)	Increase in wt. (gm)	Moisture Absorption %	Weight (gms)	Increase in wt. (gm)	Moisture Absorption %
0	10.0	..	..	10.0	..	..	10.0	..	..	10.0	..	..
2	18.4	8.4	84	16.8	6.8	68	14.4	4.4	44	14.8	4.8	48
3	19.9	9.9	99	19.6	9.6	96	17.4	7.4	74	19.9	9.9	99
5	20.7	10.7	107	21.3	11.3	113	18.8	8.8	88	20.8	10.8	108
10	21.6	11.6	116	23.2	13.2	132	20.9	10.9	109	21.4	11.4	114

The preparation of soup powders with fried materials is possible even on a home-scale as drying equipment is not needed in this case. Further, no subsequent addition of fat is required while compounding the soup powders. Another advantage of this procedure is that to the Indian consumers who are used to the taste of the fried products these soup powders are likely to be more acceptable than the soup powders prepared by hot air drying.

Storage behaviour

Earlier work on packaging and storage⁴ of deep fat fried peas and beans has shown that the products have a very good shelf-life. Hydrogenated groundnut oil used for frying has been found to be quite stable. When stored at room temperature (24—30°C) and 37°C the fried products without any added antioxidant were stable for about a year. Only for prolonged storage life, addition of antioxidant (B.H.A.) to salt used for dusting the fried products was necessary.

Experiments on packaging and storage of these soup powders have shown that packaging requirements are not very stringent. Glass jars with metal screw lids, sanitary cans or even bags made from 250 gauge polyethylene provide the necessary protection and the product has kept well without developing any rancid flavour for a storage period of about one year at room temperature of 24—30°C.

Details of packaging and storage studies on soup powders are being published separately.

Conclusion

Method has been standardised for the preparation of compounded soup powders from deep fat fried peas and beans. Because of its simplicity and low initial investment the procedure can be followed on a home-scale or cottage industry scale and appears to have bright prospects of its development. The product has a good shelf life and the packaging requirements are not very stringent.

Acknowledgement

Grateful acknowledgement is made to Dr. V. Subrahmanyam, Director of the Institute, for the keen interest taken in this investigation.

References

1. Bhatia, B.S., Nair, K. G. and Lal, Girdhari, *Def. Sci. J.* **11**, 16, 1961.
2. Bhatia, B.S., Prabhakar, J.V. and Lal, Girdhari, *Ind. J. Agri., Sci.*, **30** (1), 48, 1960.
3. Prabhakar, J.V., Investigations on deep fat frying of some vegetables, *Thesis—Associateship C.F.T.R.I.*, 1959.
4. Bhatia, B.S., Prabhakar, J.V., and Lal, Girdhari, *Ind. J. Appl. Chem.*, **23**, 73, 1960.