PALM-BASED *TRANS*-FREE BRICK SPREAD FOR SHALLOW FRYING

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Brick spread is widely used in the catering and retail sectors (*Figure 1*). The applications of this product are for spreading on bread and to stir fry vegetables, rice, seafood, meat and eggs. Brick spread replaces the function of butter in shallow frying application. Brick spread in shallow frying will act to transfer the buttery aroma into the shallow fried foods. The oils and fats used in the formulation must play the role of preserving the butter flavour during the shallow frying process. Despite this, the spread must also be able to tolerate high frying temperatures without scorching the frying pan or spattering. Specially selected palm-based oils and fats are able to support this application as palm-based products are able to withstand high frying temperatures and are resistant to oxidation. Palm-based oils and fats also contain very low levels of phospholipids (2 to 4 ppm). Hence, the use of palm-based products will be able to minimize the staining of the frying pans from the formation of gummy residual during the shallow frying process.

Common commercial brick spreads are formulated with hydrogenated fats for their property of fast crystallization required for block formation during the processing. However, hydrogenation produces *trans* fatty acids which are nutritionally undesirable as a pre-disposing factor to cardio-vascular diseases. Hence, the global trend is towards *trans*-free formulations. Palm oil, with its natural solid portion devoid of *trans* fatty acids, would be a very good substitute for hydrogenated fats. MPOB BS 1 Brick Spread was formulated with specially selected palm-based oils and fats to match the solid fat profiles of several commercial brick spreads from Eastern Europe (*Figure 2*). The palm-based oils and fats were blended to satisfy the crucial requirement of easy block formation during processing (*Figure 3*). Normally, this product is marketed in paper-wrapped bricks of 250 g/500 g for retail, or 2.5 kg/5 kg blocks for catering. Hence, the formulation must be able to form into blocks during processing to facilitate packaging.

As much as 30% water is incorporated into MPOB BS1 Brick Spread. Suitable emulsifiers are used to strengthen the binding of water to the oil in the emulsion so that the emulsion can withstand the high heating in shallow frying. The binding strength of water to oil is able to reduce the spattering during shallow frying. The gentle

Figure 1. Commercial brick spread display in hypermarket in Turkey.

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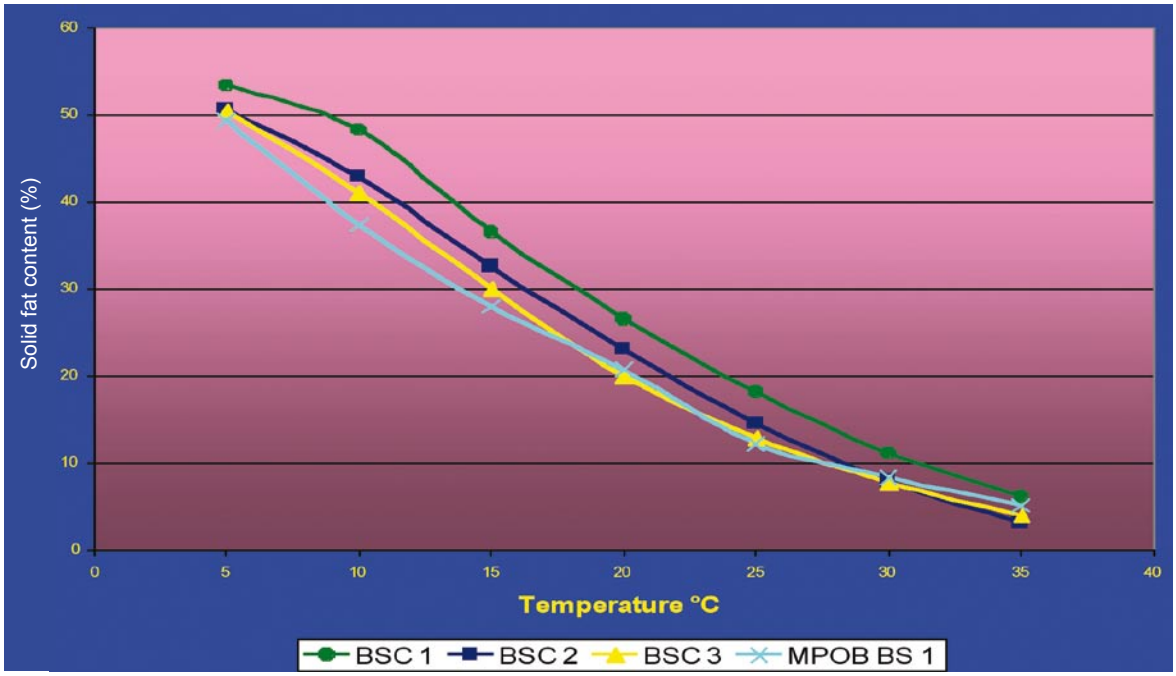

Figure 2. Solid fat content profiles of commercial brick spreads from Eastern Europe and MPOB BS1 Brick Spread.

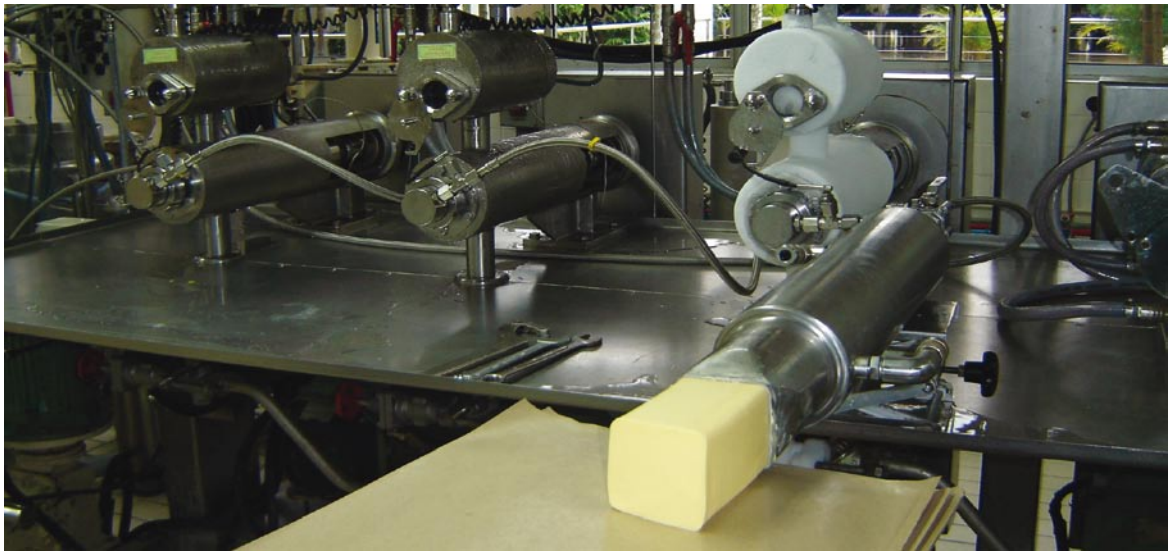

Figure 3. Production of MPOB BS1 in the MPOB perfector pilot plant.

release of water during frying is important to prevent the hot oil from spurting onto the user.

Figures 4 to *8* show the evaluation of spattering of MPOB BS1 Brick Spread. The 10 g MPOB BS1 was placed in a wok to a depth of 8 cm, and a wire mesh placed over it to support a sheet of graph paper. The graph paper was weighed down by the glass cover of the wok. The oil was then heated to 150°C for 2 min. The degree of spattering was taken as the number of oil stains on the graph paper, of which a minimal number was found, indicating the low spattering potential of the spread. There was also minimal spattering on the walls of the wok. Hence, MPOB BS 1 is an excellent medium for shallow frying.

Figure 4. The 10 g of MPOB BS 1 Brick Spread was placed in the wok.

Figure 5. Wire mesh place on the wok to hold the graph paper.

Figure 6. The brick spread was heated to 150°C for 2 min.

Figure 7. Minimum spattering was observed.

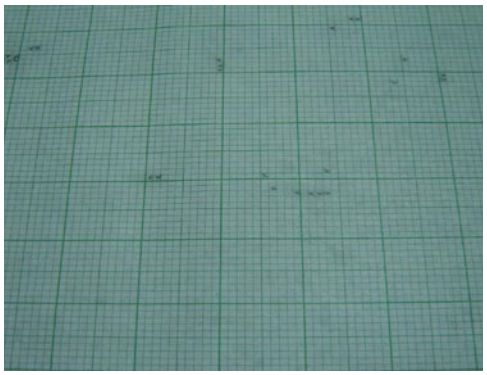

Figure 8. Minimum oil stains on graph paper.

Note: Brick spreads are not recommended for deep frying.

CHARACTERISTICS OF PALM-BASED BRICK SPREAD FOR SHALLOW FRYING

- The product has as high as 30% water content, substantially reducing the calorie intake;
- Suitable for shallow frying as specially selected emulsifiers are able to reduce the spattering during frying;
- A healthier replacement for hydrogenated fats, free from *trans* fatty acids;
- The product is also cholesterol-free; and
- The product does not leave a waxy or greasy after-taste.

CONCLUSION

Palm-based fractions are able to replace hydrogenated fats in the formulation of brick spread and incorporate as much as 30% water. The selection of the palm-based oils and fats successfully fulfils the crucial requirement for block formation during processing.

MPOB BS1 can easily be added to the range of products of companies producing shortening and margarine without undue extra cost.

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