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## Physicochemical properties of cocoa butter replacers from supercritical carbon dioxide extracted mango seed fat and palm oil mid-fraction blends (Article)

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## Abstract

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Supercritical carbon dioxide (scCO<sub>2</sub>) extracted mango seed fat (MSF) was blended with palm oil mid-fraction (POMF) to obtain cocoa butter replacers (CBRs). The fatty acid constituents and physicochemical properties of the formulated blends were analysed by gas chromatography (GC). In this study, the fatty acid constituents and other physicochemical properties such as iodine value (43.2 to 43.4 g I<sub>2</sub>/100 g fat), saponification value (195.7 to 195.9 mg KOH/g fat), acid value (2.1 to 2.7%), and slip melting point (33.8 to 34.9°C) of blends MSF/POMF at ratios 85/15, 80/20, 75/25, and 70/30 were found similar to the physicochemical properties of commercial cocoa butter. Thus, it could be concluded that the MSF/POMF blends that are blends 85/15, 80/20, 75/25, and 70/30 (3 to 6) could be suggested as CBRs in terms of the physicochemical properties like fatty acid constituents, iodine, saponification and acid values and slip melting point. © All Rights Reserved.

## Author keywords

[Antiradical activity](#) [Bioactive compounds](#) [Melon jam](#) [Quality](#)

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	Smithsonian Scientific Diving Program	SDP	<a href="#">See opportunities by SDP</a>

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(2014) *Food Research International*

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Biswas, N. , Cheow, Y.L. , Tan, C.P.

(2016) *JAOCs, Journal of the American Oil Chemists' Society*

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- 
- 1 Anwar, F., Hussain, A.I., Iqbal, S., Bhanger, M.I.  
**Enhancement of the oxidative stability of some vegetable oils by blending with Moringa oleifera oil**  
  
(2007) *Food Chemistry*, 103 (4), pp. 1181-1191. Cited 67 times.  
doi: 10.1016/j.foodchem.2006.10.023  
  
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- 
- 2 (2003) *Official methods and recommended practices of the American Oil Chemists' Society*. Cited 331 times.  
5th ed. (Part 1, A-C). Champaign: AOCS Press
- 
- 3 Calliauw, G., Foubert, I., De Greyt, W., Dijckmans, P., Kellens, M., Dewettinck, K.  
**Production of cocoa butter substitutes via two-stage static fractionation of palm kernel oil**  
  
(2005) *JAOCs, Journal of the American Oil Chemists' Society*, 82 (11), pp. 783-789. Cited 22 times.  
<http://www.aocs.org/press>  
doi: 10.1007/s11746-005-1144-8  
  
[View at Publisher](#)
- 
- 4 Chaiseri, S., Dimick, P.S.  
**Lipid and hardness characteristics of cocoa butters from different geographic regions**  
  
(1989) *Journal of the American Oil Chemists' Society*, 66 (12), pp. 1771-1776. Cited 72 times.  
doi: 10.1007/BF02660745  
  
[View at Publisher](#)
- 
- 5 Çiftçi, O.N., Fadioloğlu, S., Göğüş, F.  
**Conversion of olive pomace oil to cocoa butter-like fat in a packed-bed enzyme reactor**  
  
(2008) *Bioresource Technology*, 100 (1), pp. 324-329. Cited 36 times.  
doi: 10.1016/j.biortech.2008.05.035  
  
[View at Publisher](#)
- 
- 6 Iqbal, M., Saeed, A., Zafar, S.I.  
**FTIR spectrophotometry, kinetics and adsorption isotherms modeling, ion exchange, and EDX analysis for understanding the mechanism of Cd<sup>2+</sup> and Pb<sup>2+</sup> removal by mango peel waste**  
  
(2009) *Journal of Hazardous Materials*, 164 (1), pp. 161-171. Cited 306 times.  
doi: 10.1016/j.jhazmat.2008.07.141  
  
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- 
- 7 Jahurul, M.H.A., Zaidul, I.S.M., Norulaini, N.N.A., Sahena, F., Jaffri, J.M., Omar, A.K.M.  
**Supercritical carbon dioxide extraction and studies of mango seed kernel for cocoa butter analogy fats**  
  
(2014) *CYTA - Journal of Food*, 12 (1), pp. 97-103. Cited 16 times.  
<http://www.tandf.co.uk/journals/journal.asp?issn=1947-6337&linktype=2>  
doi: 10.1080/19476337.2013.801038  
  
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