



SDI Review Form 1.6

PART 1:

Journal Name:	British Journal of Applied Science & Technology
Manuscript Number:	MS: 2012/BJAST/2252
Title of the Manuscript:	Optimization of the Residence Time and Throughput in a Single Screw Extrusion of Cassava/African yam bean Mixtures.

General guideline for Peer Review process is available in this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)

- This form has total 9 parts. Kindly note that you should use all the parts of this review form.



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PART 2: Review Comments

	Reviewer's comment	Author's comment <i>(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
<u>Compulsory</u> REVISION comments	Abstract Please put a sentence to indicate the usefulness; the originality and the innovative factors of this research. Introduction - Page 2 lines 42-48. Delete these sentences. - Insert the following sentence after (Fellows, 2000). “In the extruders, the components are mixed, sheared and subjected to elevated temperatures and pressures. So that the dough shows a plastic consistency that favours the expansion of product at the exit of the die. In fact, the sudden drop in pressure at the exit of extruder causes the release of gases entrapped in the product, determining the swelling of extrudates (Best, 1999). Many factors affect to expansion the extrudates: type of plant, screw configuration, moisture content of the dough, residence time, operating pressure, temperature profile of the barrel, screw speed and feed capacity (Meuser & van Lengerich, 1992). Also the type of chemical type of material or ingredient used to produce extrudates could have a considerable effect on expansion degree. The presence of lipids for example leads to a compact structure and involves also technological drawbacks: migration of fatty fraction outside of dough (due to operating temperature and pressure) and,	I agree with the Reviewer's comment and have effected the corrections. I appreciate her contribution towards enriching the manuscript. I also appreciate her encouragement and the inclusion of her published articles in the area.



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	subsequently, percolation oil at the die (De Pilli et al., 2005a). Oil loss is not advisable to preserve both the extrudates (quickly oxidation of oil on the extrudate surface) and the hygienic condition of the plant. The oil loss that occurs during extrusion processing of flours with high content of lipids, can be reduced by using an emulsifier (De Pilli et al., 2005b; 2007). However, the addition of this ingredient could influence the structure of the extrudates that could be improved by addition of commercial enzymes (De Pilli et al., 2004a)." -Insert the following sentence line 41, after (Riaz, 2000). "De Pilli et al. (2004b) observed that twin-screw extruder is more suitable to extrude fat meals, than the single one because it leads to determines a smaller loss of fat during the process of extrusion and a greater expansion of the products." -Please insert some nutritional and qualitative information on African yam bean and on economical information of this raw material. - Please specify better the aim of this research. Materials and methods -Page 3 line 77: put one space between 90; 120 and 110 and °C. - It is advisable to specify the following information about extruder: type of devise to control extrusion temperature; type of screw profile used; geometrical	
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	characteristics of screw; die; barrel; etc. - What is moisture of extrudates after drying processing? - An important information is the specific mechanical energy or motor torque to understand the modifications that occurs in the extruder, above all viscosity of dough during process. Can you give this information? - Can you specify the method to dose raw material in the extruder, for example gravity feeder or something else? - Page 5 line 120. Please, insert the summation sign (Σ) in the equation). Results and discussion Page 7 lines 168-170. Please, explain and comment the obtain results (Figure 1 and 2). Page 10 line 210. Add the following sentence. -“De Pilli et al., (2008a,b; 2011; 2012) observed that system parameters (torque and die pressure) are influenced by lipid content of blends. In fact, higher lipid fraction in blend with almond or pistachio nut flours involves a gradual decrease of energy necessary to extrude material, thanks to lubricant effect of fat fraction that decreases melt viscosity inside extruder.” Tables Please, put only two decimal number; change the number 0.00 with 0.01; put an * for statistic significant difference (p-level < 0.05) and insert after table a suitable explicative sentence. References Add these citations.	
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	Best, E., Fayard, G., Holz, K. & Vanacker, P. (1999). Processing for obtaining extruded food products having high die shape conformity and reduced adhesion. U.S. Patent 5,976,596,2. Meuser, F. & Van Lengerich, B. (1992). System analytical model for the extrusion of starches. In J.L., Kokini, C.T., Ho, M.V., Karwe (Eds.). Food extrusion and technology. (pp. 619-630), New York: Marcel Dekker Inc. De Pilli, T., Severini, C., Baiano, A., Guidolin, E., Legrand, J., Massini R. 2001. Application du procédé d'extrusion aux farines grasses: cas de la farine d'amande. Sci. Alim. 21(5), 519-536. De Pilli, T. Severini, C., Baiano, A., Arhaliass, A., Legrand J. 2004a. Extrudabilité et stabilité des mélanges riches en matières grasses en cuisson - extrusion. Comparaison entre extrudeurs mono-vis et bi- vis. Sci. Alim., 24(4), 307-322. De Pilli, T., Severini, C., Carbone, B.F., Giuliani, R., Derossi, A. 2004b. Improving of fatty extrudate structures with amylase and protease. J Food Biochem., 28 (5), 387-403. De Pilli, T., Severini, C., Baiano, A. Derossi, A., Arhaliass, A., Legrand, J. 2005a. Effects of operative conditions on oil loss and properties of products obtained by co-rotating twin-screw extrusion of fatty meal: preliminary study. J. Food Eng. 70 (1), 109-116. De Pilli, T., Giuliani, R., Carbone, B.F., Derossi, A., Severini, C. 2005b. Study on different emulsifiers to retain fatty fraction during extrusion of fatty flours. Cereal Chem. 82 (5), 494-498.	
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	De Pilli, T., Carbone, B.F., Fiore, A.G., Severini, C. 2007. Effect of some emulsifiers on the structure of extrudates with high content of fat. <i>J. food eng.</i> 79(4), 1351-1358. De Pilli, T., Carbone, B.F., Derossi, A., Fiore, A.G., Severini C. 2008a. Effects of operating conditions on oil loss and structure of almond snacks. <i>Int. J. Food Sci. Tech.</i> 43(3), 430-439. De Pilli, T., Jouppila, K., Ikonen, J., Kansikas, J., Derossi, A., Severini, C. 2008b. Study on formation of starch-lipid complexes during extrusion-cooking of almond flour. <i>J. food eng.</i> 87, 495-504. De Pilli, T., Derossi, A., Talja, A.R., Jouppila, K., Severini, C. 2011. Study of starch-lipid complexes in model system and real food produced using extrusion-cooking technology. <i>Innov. Food Sci. Emerg. Tech.</i> 12, 610-616. De Pilli, T., Derossi, A., Talja, R.A., Jouppila, K., Severini, C. 2012. Starch-lipid complex formation during extrusion-cooking of model system (rice starch and oleic acid) and real food (rice starch and pistachio nut flour). <i>Eur. Food Res. Tech.</i> 234(3), 517-525.	
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Minor REVISION comments		
Optional/General comments	This subject is very interesting because deals about influence of independent variables of single screw extruder as screw speed and water feed content on throughput and residence time applied to non conventional materials. In fact it is very difficult to optimize the extrusion conditions for this type of plant when a material rich in protein and fat is used. Nevertheless, in my opinion, it is necessary to make many changes to better present the obtained results and to complete the information of material methods. Moreover, it is necessary to enrich the abstract and introduction sections in order to give prominence the importance of this manuscript.	