Personal profile

Dr. Daniel Ndaka Sila,
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Specialization: Food Engineering aspects including quantitative and qualitative approaches of using food processing technologies in parallel with knowledge in material properties (animal and plant based) in tailoring the functional and nutritional properties of the system.

Teaching responsibility: Involved in teaching Food Engineering courses (Food Processing Unit Operations, Process optimization (Drying, Themal processing, refrigeration etc), Food Packaging) within the Faculty of Agriculture at all levels (undergraduate through postgraduate).

Research interest: Engineering and manipulating the functional properties of foods to meet target customer specifications. Current interest is focused on plant based foods, in particular tailoring fruits and vegetables functionality using knowledge in plant cell wall research in combination with traditional and novel food processing technologies.

A. Publications in international peer reviewed journals

1. Koaze, H., **Sila D.N**, Karanja, P., Ken-ichi, I., and Baba N. (**2002**). Changes in quality of dried Macadamia nuts during a peak harvest season in Kenya. Food Sci Technol Res., 8 (1), 32-35.
2. Guiavarc'h, Y., **Sila, D.N**., Duvetter, T., Van Loey, A., Hendrickx, M. (**2003**). Influence of sugars and polyols on the thermal stability of purified tomato and cucumber pectinmethylesterases: a basis for TTI development. Enzyme Microb Tech., 33, 544-555.
3. **Sila, D.N**., Smout, C., Vu, T.S. and Hendrickx, M.E. (**2004**). Effects of high-pressure pretreatment and calcium soaking on the texture degradation kinetics of carrots during thermal processing. J Food Sci., 69(5): 205-21.
4. Vu, T.S., Smout, C., **Sila, D.N**., Ly Nguyen, B., Van Loey, A.M.L. and Hendrickx, M.E.G. (**2004**). Effect of preheating on thermal degradation kinetics of carrot texture. Innovative Food Sci & Emerging Technol., 5, 37-44.
5. **Sila, D.N**., Smout, C., Vu, S.T., Van Loey, A. and Hendrickx, M. (**2005**). Influence of pretreatment conditions on the texture and cell wall Components of carrots during thermal processing. J Food Sci., 70(2): E85-91.

6. Smout, C., **Sila, D.N**., Vu, T.S., Van Loey, A.M.L. and Hendrickx, M.E.G. (**2005**). Effect of preheating and calcium pre-treatment on pectin structure and thermal texture degradation: a case study on carrots. J Food Eng., 67, 419-425.
7. Duvetter, T., Fraeye, I., **Sila, D.N**., Verlent, I., Smout, C., Clynen, E., Schoofs, L., Schols, H., Hendrickx, M., Van Loey, A. (**2006**). Effect of temperature and high pressure on the activity and mode of action of fungal pectin methyl esterase. Biotechnol Progr., 22, 1313-1320.
8. Duvetter, T., Fraeye, I., **Sila, D.N**., Verlent, I., Smout, C., Hendrickx, M., Van Loey, A. (**2006**). Mode of de-esterification of alkaline and acidic pectin methyl esterases at different pH conditions. J Agric Food Chem., 54(20), 7825-7831.
9. **Sila, D.N**., Smout, C., Elliot, F., Van Loey, A., Hendrickx, M. (**2006**). Non- enzymatic depolymerization of carrots pectin: towards a better understanding of carrot texture during thermal processing. J. Food Sci. 71(1): E001-007.
10. **Sila D.N**., Doungla E., Smout C., Van Loey A. Hendrickx M. (**2006**). Pectin fractions inter-conversions: insight into understanding texture evolution of thermally processed carrot. J Agric Food chem., 54(22):8471-8479
11. Vu, T.S., Smout, C., **Sila, D.N**., Van Loey, A.M.L. and Hendrickx, M.E.G. (**2006**). The effect of brine ingredients on carrot texture during thermal processing in relation to pectin depolymerisation due to the b-elimination reaction. J Food Sci. 71(9):E370-375.
12. Fraeye, I., Duvetter, T., Verlent, I., **Sila, D.N**., Hendrickx, M., Van Loey, A. (**2007**). Comparison of enzymatic de-esterification of strawberry and apple pectin at elevated pressure by fungal pectinmethylesterase. Innovative Food Sci & Emerging Technol., 8:93-101.
13. **Sila, D.N**., Smout, C., Satara, Y., Vu, S.T., Van Loey, A. and Hendrickx, M. (**2007**). Combined thermal and high pressure effect on carrot pectinmethylesterase stability and catalytic activity. J Food Eng., 78(3), 755-764.
14. **Sila, D.N**., Xu, Y., Van Buggenhout, S., Smout, C., Van Loey, A. and Hendrickx M. (**2007**). The relation between (bio-) chemical, morphological, and mechanical properties of thermally processed carrots as influenced by high pressure pretreatment condition. Eur Food Res Technol., 226 (1-2), 127-135.
15. Van Iinden, V., Sila, D.N., Duvetter, T., De Baerdemaeker, J., Hendrickx, M. (2008). Effect of mechanical impact-bruising on polygalacturonase and pectinmethylesterase activity and pectic cell wall components in tomato fruit. Postharvest Biology and Technology, 47, 98-106.
16. De Roeck, A., Sila, D.N., Duvetter, T., Van Loey, A., Hendrickx, M. (2008). Effect of high pressure/high temperature processing on cell wall pectic substances in relation to firmness of carrot tissue. Food Chem 107 (3), 1225-1235.
17. **Sila, D.N**., Duvetter, T., De Roeck, A., Verlent, I., Smout, C., Moates, G., Hills, B., Waldron, K., Hendrickx, M., Van Loey, A. (**2008**). Texture changes of processed fruits and vegetables: Potential use of high-pressure processing. Trends Food Sci Tech 19(6):309-319.
18. Duvetter, T., Sila, D.N., Van Buggenhout, S., Jolie, R., Van Loey, A., Hendrickx, M. (2009). Pectins in processed fruit and vegetables: part I-stability and catalytic activity of pectinases. Crit Rev Food Sci F. 8:75-85.
19. Sila D.N, Van Buggenhout, S., Duvetter, T., Fraeye, I., De Roeck, A., Van Loey, A., Hendrickx, M. (2009). Pectins in processed fruit and vegetables: part II- structure-function relationships. Crit Rev Food Sci F. 8:86-104.
20. Van Buggenhout, S., Sila, D.N., Duvetter, T., Van Loey, A., Hendrickx, M. (2009). Pectins in processed fruit and vegetables: part III-texture engineering. Crit Rev Food Sci F. 8:105-117.
21. De Roeck, A., Duvetter, T., Fraeye, I., Van der Plancken, I., Sila, D.N., Van Loey, A., Hendrickx, M. (2009). Effect of high pressure/high temperature processing on chemical pectin conversions in relation to fruit and vegetable texture. Food Chem. 115: 207-213.
22. Jolie, R.P., Duvetter, T., Houben, K., Clynen, E., Sila, D.N., Van Loey, A.M., Hendrickx, M.E.(2009). Carrot pectin methylesterase and its inhibitor from kiwi fruit: Study of activity, stability and inhibition. Innovative Food Science and Emerging Technologies, 10 (4): 601-609.

B. Contributions at international meetings published in proceedings

1. Smout C, Sila D, Vu T., Verlent I, Duvetter T, Ly Nguyen B, Van Loey A and Hendrickx M. (2004). Effect of preheating, high pressure pre-treatments and/or calcium pre-treatments on thermal texture degradation kinetics of carrots. Oral presentation at 9th International Congress on Engineering and Food, Montpellier, France, March 7-11, 2004.

2. **Sila D**, Melbourne F, Smout C, Van Loey A and Hendrickx M. (2005). Non-enzymatic depolymerization of carrot pectin during thermal processing: towards a better understanding of carrot texture. Oral presentation at the 'EFFoST Innovations in Traditional Foods 2005 conference', October 25th-28th, 2005, Valencia, Spain. Vol 1. pg 655-58.

C. Contributions at national meetings published in proceedings

1. Guiavarc'h Y, **Sila D**, Van Loey A and Hendrickx M. (2002). Influence of sugars and polyols on the thermal stability of purified tomato and cucumber pectin methylesterases : relationship between hydroxyl groups supply and thermal inactivation. Poster presented at the 9th PhD symposium on Applied Biological Sciences, October 9 2002, Gent, Belgium, pg 285-288.

2. **Sila D**, Smout C, Vu T and Hendrickx M. (2003). Effects of high pressure pretreatment and calcium soaking on the texture degradation kinetics of carrots. Poster presentation at '9th PhD Symposium on Applied Biological Sciences', October 16, 2003, Leuven, Belgium, Proceedings, pg 263-266.

3. **Sila D**, Smout C, Yusuf S, Truong V, Van Loey A and Hendrickx M. (2004). Effect of combined high pressure and mild heat on carrot pectinmethylesterase activity. Poster presentation at '10th PhD Symposium on Applied Biological Sciences', September 29, 2004, Leuven, Belgium, Proceedings 69(2): 195-198.

4. Van Buggenhout S, Tran Thanh T, **Sila D**, Smout C and Hendrickx M. (2004). Influence of pectin conversions combined with high pressure shift freezing on the texture of frozen carrots. Poster presentation at '10th PhD Symposium on Applied Biological Sciences, September 29, 2004, Ghent, Belgium, Proceedings 69(2): 289-292.

5. **Sila D**, Melbourne F, Smout C, Truong V, Van Loey A and Hendrickx M. (2005). Beta-elimination of carrot pectin: towards a better understanding of carrot texture during thermal processing. Oral presentation at '11th PhD Symposium on Applied Biological Sciences', October 6th, 2005, Leuven, Belgium, Proceedings 70(2):19-22.

D. Contributions at international meetings published as abstracts

1. Guiavarc'h Y, **Sila D**, Duvetter T, Van Loey M, Hendrickx M.E. (2003). Relation between the number of hydroxyl groups provided by additives and the thermal inactivation of purified tomato pectin methylesterase. Poster presented at the 12th international congress on Food Science and Technology, July 16-20, 2003, Chicago, USA.

2. **Sila D**, Van Loey A, Smout C, Hendrichx M. (2005). A novel approach towards improving the texture of thermally processed carrots. 2005 IFT Annual Meeting, New Orleans, USA. Abstract and Poster presentation.

3. **Sila D**, Smout C, Van Loey A and Hendrickx M. (2005). Potential for improving the texture of thermal processed fruits/vegetables products through enzymatic pectin modification. Poster presented at the "International conference of fruits, vegetable and potato processing", November 7-8, 2005, Brugge, Belgium, pg 77 - 78.