



Professor  
Department of Food Science and Technology  
School of Agricultural Sciences

**(A) AREA OF SPECIALIZATION**

Food Science and Technology/Postharvest Physiology and Technology

**(B) UNIVERSITY EDUCATION**

- (1) B.Sc. in Food Science and Technology (Upper Second Class Honours), University of Nairobi, Kenya
- (2) M.Sc. in Food Science and Technology, University of Nairobi, Kenya
- (3) Ph.D. in Agricultural Technology, Okayama University, Japan
- (4) Master of Business Administration, University of Nairobi

**(C) PAPERS PUBLISHED IN PEER-REFEREED JOURNALS**

- (1) Nyaberi, M.O., Onyango, C.A., Mathooko, F.M., Maina, J.M. and Makobe, M. (2017a). Profiling active phytochemical compounds of *Ziziphus abyssinica* herb responsible for antioxidant and antimicrobial activity *Journal of Animal and Plant Sciences*, Vol.34 (2): 5413-5424.
- (2) Karimi, S., Wawire, M. and Mathooko, F.M. (2017b). Impact of frying practices and frying conditions on the quality and safety of frying oils used by street vendors and restaurants in Nairobi, Kenya. *Journal of Food Composition and Analysis*, 62: 239–244.
- (3) Nyaberi, M.O., Onyango, C.A., Mathooko, F.M., Maina, J.M. and Makobe, M. (2017c). Determining efficient extraction procedure of phytochemicals from the fruit paste of *Ziziphus abyssinica* and *Tamarindus indica*. *Journal of Applied Biosciences*, 112: 11045-11051.

- (4) Wanjala, G.W., Mathooko, F.M., Kutima, P.M. and Mathara, J.M. (2017c). Microbiological Quality and Safety of Raw and Pasteurized Milk Marketed in and Around Nairobi Region. *African Journal of Food, Agriculture, Nutrition and Development*, 17(1): 11518-11532.
- (5) Wawire, M., Oey, I., Mathooko, F.M. Njoroge, C.K., Shitanda, D., Sila, D.N. and Hendrickx, M. (2016). Kinetics of thermal degradation of peroxidase and colour degradation of African cowpea (*Vigna inguiculata*) leaves. *Journal of Food Science*, 81: 56-64.
- (6) Mathooko, F.M. and Ogutu, M.O. (2015). Porter's five competitive forces framework and other factors that influence the choice of response strategies adopted by public universities in Kenya. *International Journal of Educational Management*, 29: 334-354.
- (7) Mathooko, F.M. and Ogutu, M.O. (2014a). Coping strategies adopted by public universities in Kenya in response to environmental changes. *Journal of Management and Strategy*, 5: 9 – 17.
- (8) Mathooko, F.M. and Ogutu, M.O. (2014b). The extent to which public universities in Kenya experience managerial and environmental challenges. *European Journal of Management and Business*, 6: 72 – 84.
- (9) Onyango, C.A., Gakuya, L.W., Mathooko, F.M., Maina, J.M., Nyaberi, M.O., Makobe, M., and Mwaura, F. (2014c). Preservative effect of various indigenous plants on fermented milk from Maasai community of Kajiado County. *Journal of Applied Biosciences*, 73: 5935 – 5941.
- (10) Onyango, C.A., Gakuya, L.W., Mathooko, F.M., Maina, J.M., Nyaberi, M.O., Makobe, M., and Mwaura, F. (2014d). Phytochemical studies on herbal plants commonly used for processing and preserving meat and milk. *Journal of Applied Biosciences*, 73: 5942 – 5948.
- (11) Musyimi, S.M., Sila, D.N., Okoth, E.M., Onyango, C.A. and Mathooko, F.M. (2013a). The influence of process optimization on the fermentation profile of mango wine prepared from the Apple mango variety. *Journal of Animal and Plant Sciences*, 17(3): 2600-2607.
- (12) Okoth, E. M., Sila, D.N., Onyango, C. A., Owino, .W.O., Musembi, S.M. and Mathooko F.M. (2013b). Evaluation of physical and sensory quality attributes of three mango varieties at three stages of ripeness, grown in lower eastern province of Kenya - part 1. *Journal of Animal and Plant Sciences*. 17(3): 2608-2618.

- (13) Okoth, E. M., Sila, D.N., Onyango, C. A., Owino, W.O., Musyimi, S.M. and Mathooko F.M. (2013c). Evaluation of chemical and nutritional quality attributes of selected mango varieties at three stages of ripeness, grown in lower Eastern province of Kenya – part 2. *Journal of Animal and Plant Sciences*, 17(3): 2619-2630.
- (14) Onyango C. A., Ochanda, S.O., Mwanjala M. A., Ochieng, J. K. and Mathooko, F. M. and Kinyuru, J.N. (2013d). Effects of malting and fermentation on anti-nutrients reduction and protein digestibility of red sorghum, white sorghum and pearl sorghum. *Journal of Food Research*. 2: 41-49.
- (15) Ochanda, S.O., Onyango, C.A., Mwasaru, M.A., Ochieng, J.K., Mathooko, F.M., (2012a). Development of instant breakfast cereals from optimized flours of pearl millet, red and white sorghum. *Journal of Applied Bioscience*, 51: 3559-3566.
- (16) Onyango, C.A., Nyaberi, M.O., Mathooko, F.M., Maina, J.M., Makobe, M. and Mwaura, F. (2012b). Evaluation of *Ziziphus abyssinica* fruit paste as used by the pastoral community of West Pokot, Kenya for the preservation of fresh pork sausages. *Journal of Animal and Plant Sciences*, 13: 1781-1790.
- (17) Wawire, M., Oey, I., Mathooko, F.M. Njoroge, C.K., Shitanda, D., Sila, D.N. and Hendrickx, M. (2012c). Effect of harvest age and thermal processing on poly- $\gamma$ -glutamate folates and minerals in African cowpea leaves (*Vigna unguiculata*). *Journal of Food Composition and Analysis*. 25: 160-165.
- (18) Onyango C. A., Ochanda, S.O., Mwanjala M. A., Ochieng, J. K. and Mathooko, F. M. (2012d). Development of an instant breakfast cereal from optimized flours of red and white sorghum and pearl millet. *Journal of Applied Biosciences*. 51: 3559 – 3566.
- (19) Wawire, M., Oey, I., Njoroge, C.K., Shitanda, D., and Hendrickx, M., Mathooko, F.M. (2011). Thermal stability of ascorbic acid and ascorbic acid oxidase in African cowpea leaves (*Vigna unguiculata*) of different maturity. *Journal of Agricultural and Food Chemistry*, 59: 1774-1783.
- (20) Muchui M.N., Mathooko, F.M., Njoroge, C.K., Kahangi, E.M., Onyango, C.A. and Kimani, E.M. (2010a). Effect of perforated blue polyethylene bunch covers on selected postharvest quality parameters of tissue-cultured

- bananas (*Musa* spp.) cv. Williams in Central Kenya. *Journal of Stored Products and Postharvest Research*, 1(3): 29 – 41.
- (21) Ochanda, S.O., Onyango, C.A., Mwasaru, M.A., Ochieng, J.K., Mathooko, F.M., (2010b). Effects of alkali treatment on tannins and phytates in red sorghum, white sorghum and pearl millet. *Journal of Applied Bioscience*, 36: 2409-2418.
- (22) Mathooko, F.M. (2010c). Challenges and Opportunities in Postharvest Horticulture Research and Training in Developing Countries – The Case of Kenya”. *Acta Horticulturae*, 365: 1243-1251.
- (23) Nyaberi, M.O., Onyango, C.A., Mathooko, F.M., Maina, J.M., Makobe, M. and Mwaura, F. (2010d). Bioactive fractions in the stem charcoal of *Ozoroa insignis* used by the pastoral communities in West Pokot to preserve milk. *Journal of Applied Biosciences*, 26: 1653-1658.
- (24) Nyaberi, M.O., Onyango, C.A., Mathooko, F.M., Maina, J.M., Makobe, M. and Mwaura, F. (2010e). Evaluation of phytochemical, antioxidant and antibacterial activity of edible fruit extracts of *Ziziphus abyssinica* A. Rich. *Journal of Animal and Plant Sciences*, 6: 623- 629.
- (25) Abong, G.O. Okoth, M.W., Karuri E.G., Kabira, J.N. and Mathooko, F.M. (2009a). Influence of potato cultivar and stage of maturity on oil content of French fries (chips) made from eight Kenyan potato varieties. *African Journal of Food, Agriculture, Nutrition and Development*, 9(8): 1668-1682.
- (26) Akande E.A., Adegoke G.O. and Mathooko, F.M. (2009c). Production and quality of tea flavoured with wild pepper (*Erythrococca anomala* Benth) seeds powder. *Journal of Applied Sciences*, 12: 8148-8154.
- (27) Abong, G.O. Okoth, M.W., Karuri E.G., Kabira, J.N. and Mathooko, F.M. (2009d). Nutrient content of raw and processed products from Kenyan potato cultivars. *Journal of Applied Biosciences*, 16: 877-886.
- (28) Abong, G.O. Okoth, M.W., Karuri E.G., Kabira, J.N. and Mathooko, F.M. (2009e). Evaluation of selected Kenyan potato cultivars for proceeding into French fries. *Journal of Animals and Plant Sciences*, 2(3): 141-147.
- (29) Abong, G.O. Okoth, M.W., Karuri E.G., Kabira, J.N. and Mathooko, F.M. (2009f). Levels of reducing sugar in eight Kenyan potato cultivars as influenced by stage of maturity and storage conditions. *Journal of Animals and Plant Sciences*, 2(2): 76-84.

- (30) Akande E.A. Adegoke G.O. and **Mathooko, F.M.** (2009g). Some Physical and Nutritional Characteristics of the seed of wild pepper (*Erythrococca anomala*) Seeds. *Pakistan Journal of Scientific and Industrial Research*, 51 (3): 128-130.
- (31) Akande E.A. Adegoke G.O. and **Mathooko, F.M.** (2009h). Production and Quality Evaluation of Tea Flavoured with Wild Pepper (*Erythrococca anomala*) Seeds. *Journal of Science, Engineering and Technology*, 15(4): 254-265.
- (32) Madigu, N.O., **Mathooko, F.M.**, Onyango, C.A., Kahangi, E.M. and Owino, W.O. (2009i). Postharvest Behaviour and Quality Characteristics of Mango (*Mangifera indica* L.) Fruit Grown Under Water Deficit Conditions. *Acta Horticulturae*, 287 305-312.
- (33) Madigu, N.O., **Mathooko, F.M.**, Onyango, C.A., Kahangi, E.M. and Owino, W.O. (2009j). Physiology and Quality Characteristics of Mango (*Mangifera indica* L.) Fruit Grown Under Water Deficit Conditions. *Acta Horticulturae*, 287: 299-304.
- (34) Muchui M.N., **Mathooko F.M.**, Njoroge C.K., Kahangi E.M., Onyango C.A., Kimani, E., Wepukhulu, S.B., Van Lauwe B. and Jefwa J. (2008). Total soluble solids, sugar and sensory quality of tissue culture bananas as influenced by inorganic fertilizers and micronutrients. *East African Agriculture and Forestry Journal*, 74(1): 33-37.
- (35) Mwaniki, M.W., **Mathooko, F.M.**, Hiwasa, K., Tateishi, A., Ushijima, K., Nakano, R., Kubo, Y. and Inaba, A. (2007).  $\beta$ -Galactosidase and  $\alpha$ -L-arabinofuranosidase activities and gene expression in European and Chinese pear fruit during ripening. *Journal of the Japanese Society for Horticultural Science*, 76(1): 85-90.
- (36) Owino, W.O., Manabe, Y., **Mathooko, F.M.**, Kubo, Y. and Inaba, A. (2006). Regulatory mechanisms of ethylene biosynthesis in response to various stimuli during maturation and ripening of fig (*Ficus carica* L.) fruit. *Plant Physiology and Biochemistry*, 44: 335-342.
- (37) **Mathooko, F.M.**, Wakhungu, J.W. and Onyango, C.A. (2005a). Competence Gaps in Linking Agricultural Production with Value Addition and Marketing in Kenya. ACTS Press, Nairobi, Kenya, ISBN 9966-41-135-6. Pp. 160.

- (38) Tateishi, A., Nagashima, K., Inoue, H., Mathooko, F.M., Mwaniki, M.W., Kubo, Y. and Inaba, A. (2005a). Differential expression of members of the  $\beta$ -galactosidase gene family during Japanese pear (*Pyrus pyrifolia* L.) fruit growth and on-tree ripening. *Journal of the American Society for Horticultural Science*, **130(6)**: 819-829.
- (39) Owino, W.O., Ambuko, J.L. and Mathooko, F.M. (2005c). Molecular basis of cell wall degradation during fruit ripening and senescence. *Stewart Postharvest Review*, **3(3)**: 1-10.
- (40) Mwaniki, M.W., Mathooko, F.M., Matsuzaki, M., Hiwasa, K., Tateishi, A., Ushijima, K., Nakano, R., Kubo, Y. and Inaba, A. (2005d). Expression characteristics of seven members of the  $\beta$ -galactosidase gene family in growing European pear (*Pyrus communis* L.) fruit and their regulation by 1-methylcyclopropene during postharvest ripening. *Postharvest Biology and Technology*, **36**: 253-263.
- (41) Mathooko, F.M., Tsunashima, Y., Kubo, Y. and Inaba, A (2004) Expression of a 1-aminocyclopropane-1-carboxylate oxidase gene in peach (*Prunus persica* L.) fruit in response to treatment with carbon dioxide and 1-methylcyclopropene: possible role of ethylene. *African Journal of Biotechnology*, **3(10)**: 497-502.
- (42) Mathooko F.M. (2003a). A comparison of modified atmosphere packaging under ambient conditions and low temperatures storage on quality of tomato fruit. *African Journal of Food, Agriculture, Nutrition and Development*, **2(3)**: 34-41.
- (43) Mathooko, F.M. and Nabawanuka, J. (2003b) Effect of film thickness on postharvest ripening and quality characteristics of tomato (*Lycopersicon esculentum* L.) fruit under modified atmosphere packaging. *Journal of Agriculture, Science and Technology*, **5(1)**: 39-60.
- (44) Mathooko, F.M. and Vilane. B.R.T. (2003c). Effect of modified atmosphere packaging under ice cooling on the postharvest storage life and quality of spinach (*Spinacea oleracea* L) leaves. *Journal of Agriculture, Science and Technology*, **5(1)**: 61-79.
- (45) Mathooko, F.M. and Kiiiiya, E. N. (2002). Ascorbic acid retention in lime juice preserved with sulphur dioxide and benzoic acid. *African Journal of Food and Nutrition Sciences*. **2(1)**: 33-37.

- (46) **Mathooko, F.M.**, Tsunashima, Y., Owino, Z. O., R., Kubo, Y. and Inaba, A. (2001). Regulation of genes encoding ethylene biosynthetic enzymes in peach (*Prunus persica* L.) fruit by carbon dioxide and 1-methylcyclopropene. *Postharvest Biology and Technology*, **21(3)**: 281-298.
- (47) Kubo, Y., Xue, Y., Nakatsuka, A., **Mathooko, F.M.**, Inaba, A. and Nakamura, R. (2000). Expression of a water stress-induced polygalacturonase gene in harvested cucumber fruit. *Journal of the Japanese Society of Horticultural Science*, **69(3)**: 273-279.
- (48) **Mathooko, F.M.**, Mwaniki, M.W., Nakatsuka, A., Shiomi, S., Kubo, Y., Inaba, A. and Nakamura, R. (1999). Expression characteristics of *CS-ACS1*, *CS-ACS2* and *CS-ACS3*, three members of the 1-aminocyclopropane-1-carboxylate synthase gene family in cucumber (*Cucumis sativus* L.) fruit under carbon dioxide stress. *Plant and Cell Physiology* **40**: 164-172.
- (49) **Mathooko, F.M.**, Inaba, A. and Nakamura, R. (1998a). Characterization of carbon dioxide stress-induced ethylene biosynthesis in cucumber (*Cucumis sativus* L.) fruit. *Plant and Cell Physiology*, **39(3)**: 285-293.
- (50) Mwasaru, M.A., **Mathooko, F.M.**, Onyango, C.A., Kiiyukia, C., Njoroge, S. M., Kenji, G.M., Koaze, H., and Ueda, Y. (1998b). Production and utilization of food commodities in Kenya. *Food Preservation Science Journal*, **24(4)**: 255-266.
- (51) **Mathooko, F.M.**, Ono, T., Kubo, Y., Inaba, A. and Nakamura, R. (1997a). Differential regulation of wound-induced 1-aminocyclopropane-1-carboxylate synthase activity and gene expression in the mesocarp tissue of winter squash fruit by carbon dioxide and diazocyclopentadiene. *Journal of Agriculture, Science and Technology*, **1(1)**: 1-14.
- (52) **Mathooko, F.M.** (1997b). Regulation of respiratory metabolism in fruits and vegetables by carbon dioxide. *Postharvest Biology and Technology*, **9(3)**: 247-264.
- (53) Abe, K., **Mathooko, F.M.**, Kiiyukia, C., Mwaniki, M.W., Muigai, C.W. and Koaze, H. (1997c). Topics on fruits and vegetables markets in Kenya. *Journal of the Japan Association of Food Preservation Scientists*, **23(2)**: 89-95.
- (54) **Mathooko, F.M.** (1996). Regulation of ethylene biosynthesis in higher plants by carbon dioxide. *Postharvest Biology and Technology*, **7(1)**: 1-26.

- (55) Mathooko, F.M., Kubo, Y., Inaba, A. and Nakamura, R. (1995a). Induction of ethylene biosynthesis and polyamine accumulation in cucumber fruit in response to carbon dioxide stress. *Postharvest Biology and Technology*, **5(1): 51-65**.
- (56) Mathooko, F.M., Kubo, Y., Inaba, A. and Nakamura, R. (1995b). Characterization of the regulation of ethylene biosynthesis in tomato fruit by carbon dioxide and diazocyclopentadiene. *Postharvest Biology and Technology*, **5 (3): 221-233**.
- (57) Kubo, Y., Yamashita, Y., Ono, T., Mathooko, F.M., Imaseki, H. and Inaba, A. (1995c). Regulation by carbon dioxide of wound-induced 1-aminocyclopropane-1-carboxylate synthase gene expression in winter squash fruit. *Acta Horticulturae*, **394: 219-226**.
- (58) Mathooko, F.M., Fukuda, T., Kubo, Y., Inaba, A. and Nakamura, R. (1995d). Regulation of mitochondrial activity in cucumber fruit, broccoli buds and carrot by carbon dioxide. *Acta Horticulturae*, **398: 71-79**.
- (59) Mathooko, F.M. and Imungi, J.K. (1994a). Ascorbic acid changes in three indigenous Kenyan leafy vegetables during traditional cooking. *Ecology of Food and Nutrition*, **32: 239-245**.
- (60) Mathooko, F.M. and V.N. Njiru. (1994b). Quality changes in bottled and canned lime juice during processing and storage. *East African Agriculture and Forestry Journal*, **60(1): 59-65**.
- (61) Mathooko, F.M., Kubo, Y., Inaba, A. and Nakamura, R. (1993a). Regulation by carbon dioxide of wound-induced ethylene biosynthesis in tomato pericarp and winter squash mesocarp tissues. *Postharvest Biology and Technology*, **3 (1): 27-38**.
- (62) Mathooko, F.M., Kubo, Y., Inaba, A. and Nakamura, R. (1993b). Retention of freshness in fig fruit by controlled atmosphere or modified atmosphere packaging under ambient temperature. *Journal of the Japanese Society for Horticultural Science*, **62 (3): 661-667**.
- (63) Mathooko, F.M., Kubo, Y., Inaba, A. and Nakamura, R. (1993c). Partial characterization of 1-aminocyclopropane-1-carboxylate oxidase from excised mesocarp tissue of winter squash fruit. *Scientific Reports of the Faculty of Agriculture, Okayama University, Okayama, Japan*, **82: 49-59**.



(64) Mathooko, F.M., Kubo, Y., Inaba, A. and Nakamura, R. (1993d). Inhibition of auxin-induced ethylene production in cucumber fruit discs by carbon dioxide. *Postharvest Biology and Technology*, 3 (4): 314-325.

(65) Mathooko, F.M. and Muyanga, E.M. (1992). Acceptability of whey-fruit juice drink mix prepared with cottage cheese whey. *East African Agriculture and Forestry Journal*, 58 (1): 39-47.

**(D) ELECTRONIC PUBLICATIONS (AVAILABLE via INTERNET)**

(1) Mathooko, F.M., Tsunashima, Y., Owino, Z.O., Kubo, Y. and Inaba, A. (2001). Molecular cloning and sequence analysis of a cDNA encoding actin gene in peach (*Prunus persica* L.), (Accession no. AB046952).

(2) Mathooko, F.M., Tsunashima, Owino, Z.O., Y., Kubo, Y. and Inaba, A. (2000). Further isolation and sequence analysis of 1-aminocyclopropane-1-carboxylate (ACC) oxidase genes (*PP-ACO2*) in peach (*Prunus persica* L.), (Accession no. – AB044712).

(3) Mathooko, F.M., Tsunashima, Y., Kubo, Y. and Inaba, A. (1999). Isolation and sequence analysis of 1-aminocyclopropane-1-carboxylate (ACC) oxidase gene (*PP-ACO1*) in peach (*Prunus persica* L.), (Accession no. – AB044711).

(4) Mathooko, F.M., Tsunashima, Y., Kubo, Y. and Inaba, A. (1998). Molecular cloning and sequence analysis of a cDNA encoding 1-aminocyclopropane-1-carboxylate (ACC) synthase gene (*PP-ASC1*) in peach (*Prunus persica* L.), (Accession no. – AB044662).

**(E) UNIVERSITY LEVEL BOOK PUBLISHED**

(1) Mathooko, J.M., Mathooko, F.M. and Mathooko, P.M. (2011). Academic Proposal Writing. Second Edition. Danse Agencies, Nairobi, Kenya, ISBN 9978-9-966-21043-2.

**(F) ON-GOING RESEARCH**

(1) Postharvest Handling and Value Addition Technologies of Food Crops among Small-Holder Farmers in the Arid and Semi-Arid Lands of Eastern Kenya.

(2) Characterization of the Phytochemical Preservatives and Nutritive Qualities of *Tamarindus indicus* and *Ziziphus abyssinica* A. Rich Herbs.

- (3) Assessment, Improvement and Development of Mango (*Mangifera indica*) Fruit Postharvest Handling and Value Addition Technologies in Kenya.
- (4) Identification of the most aflatoxin-resistant local maize varieties against *Aspergillus flavus* using Kernel Screening Assay (KSA) for South Eastern Kenya region.
- (5) Modeling and Process Optimization for Removal of Antinutrients in Selected Green Leafy Vegetables Consumed in Kenya.
- (6) Characterization of the Phytochemical Preservatives and Nutritive Qualities of *Tamarindus indicus* and *Ziziphus abyssinica* A. Rich Herbs.