Tritium content in African coconuts

Giscard Honoré Sonkwa Monthe¹⁾, Romana Krištof²⁾, Jasmina Kožar Logar²⁾



¹⁾Faculty of Science, University of Yaoundé, Cameroon ²⁾Jožef Stefan Institute, Ljubljana, Slovenia LSC2017 Advances in Liquid Scintillation Spectrometry

The aim

 Narayan et.al. proposed that coconut fruit from India pre-concentrates tritium from environment

• Coconuts are:

- a important nutrition source in tropical and subtropical regions
- very popular due to its richness in vitamins, minerals and bioactive compounds

• Is this the truth also for African coconut?

Narayan K. K., Deo J. V., Abani M. C., Natural tritium levels in tender and ripe coconut fruit (Cocos Nucifera L.): a preliminary examination, The science of Total Environment 256 (2000) 233 - 237

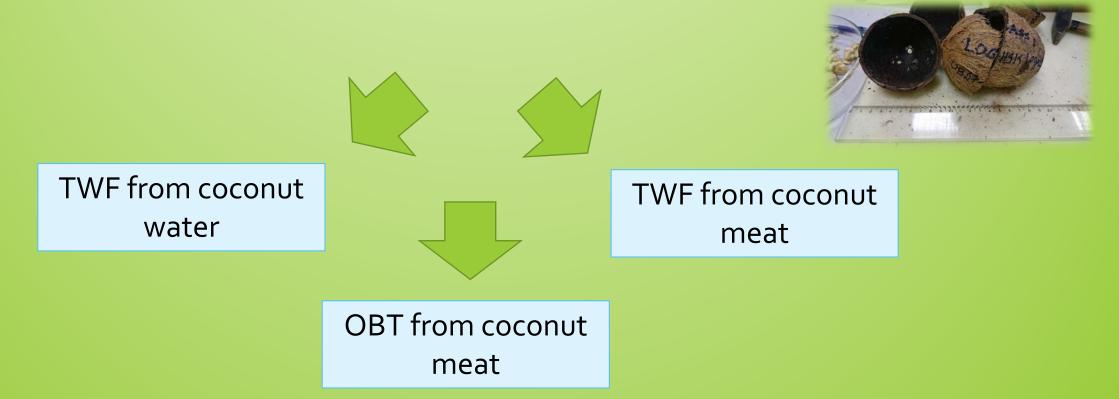
Sampling locations National Park Ngaoundal Ngaoundere Gboko A3 Bocaranga Nsukka Banyo Meiganga Enugu Tibati Wum Bo Kumbo Onitsha 0 Bamenda Bouar 0 Okigwe Garoua-Mboulai A6 Baoro Cameroon Cross River Bafoussam National/Park Aba Uyo Calabar NB 0 Carnot Kette 0 Port Harcourt 0 0 Nanga-Eboko 0 Loum Bertoua 0 Batouri 0 Berbérati 0 Obala 0 Gamboula 00 Yaounde Ayos Malabo Yokadoum Mbalmayo Nola Réserve Lomie N2 Du Dja Ebolowa Kribi Baya Sangmelima Gribe N17 Djoum Salapoumbe No N2 Nki National N Park N9 Moloundou Low Minkébé Bata Anisoc N2 0 National Park Oyem Mbini Ouesso Parc National d'Odzala-Kokoua

LSC2017 Advances in Liquid Scintillation Spectrometry



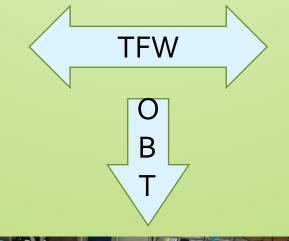








Sample preparation



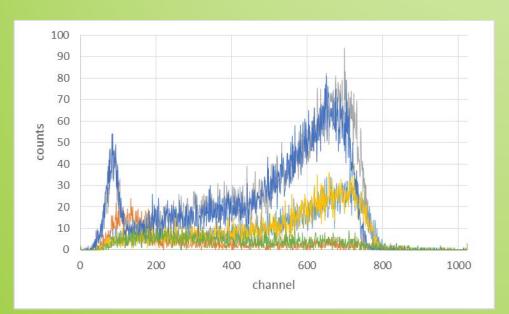




+ measurement by ISO 17025 accredited procedure

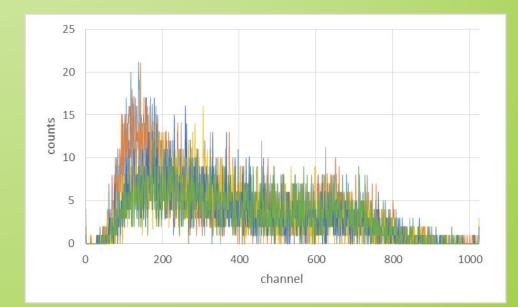
TFW in meat

Evaporation



3 < pH > 6 9.6 < μS/cm² > 9400

Distillation



5 < pH > 7 65 < μS/cm² > 160

Comparison of the sample preparation

Evaporation		Distillation	
SQP(E)	Activity [Bq/L]	SQP(E)	Activity [Bq/L]
742	2.4 ± 1	747	1.7 ± 0.9
743	2.3 ±0.5	741	1.4 ± 0.7
744	2.4 ± 1.2	744	2.5 ± 1.2

Results

Sample	TFW water [Bq/L]	TFW meat [Bq/L]	OBT meat [Bq/L]
Bafia	< 0.8	< 0.8	1.4 ±0.7
Edea	1.3 ± 0.5	0.9 ±0.3	< 0.9
Limbe (low)	1.0 ± 0.9	0.9 ±0.6	< 0.8
Limbe (tall)	< 0.9	< 0.9	1.8 ± 0.9
Logass	< 0.8	0.9 ± 0.7	< 0.8
Makenene	1.4 ± 0.8	< 1	1.4 ± 0.6
Ivory Coast	/	4.15 ± 0.7	/
Eq. Guinea	/	5.37 ± 0.7	1.2 ± 1.2

Conclusions

- evaporation sample preparation could be applied in any lab
 - attention to heating temperature
 - pH and conductivity measurement
- obtained results are comparable
- low measured activities, there is NO pre-concentration of tritium in coconuts

Any questions or suggestions?



