Butyrylcholinsterase inhibitors from *Croton Oligandrus* Pierre ex. Hutch (Euphorbiaceae) and two *Ficus* species (Moraceae)

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Abstract

Alzheimer's disease (AD) is the most common form of dementia and mainly afflict people over 65 years of age. AD is characterized by a progressive memory loss that leads to a profound emotional disturbance in later stages. As no safe and effective drug is yet available for the treatment of AD, secondary metabolites from plants may be instrumental in meeting this challenge.

From this work, 51 compounds were isolated from three different plant (*Croton oligangrus*, *Ficus pumila* and *Ficus thonningii*) and fully characterized. The extract and some of the isolates were tested *in vitro* for their inhibitory property against both acetyl- and butyrylcholinesterase enzymes by Ellman method using eserin/galantamine as positive control. Some crude methanolic extract showed positive response against tested enzymes. The ability of some isoflavonoids, coumarin, diterpenoids and triterpenoids to inhibit cholinesterase has been evaluated and herein reported. These results are in agreement with the ethnobotanical uses of these plants and indicated that this activity could contribute significantly to the pharmacological properties of these species.

Image



Recent publications

1- Bankeu, K.J.J., Sattar, H., **Fongang, F.S.Y.**, Muhammadi, W.S., Simoben, V.C., Ntie-Kang, F., Feuya, R.T.G., Tchuenmogne, A.T.M., Lateef, M., Lenta, N.B., Ali, M.S., Ngouela, S.A., **2018**. Synthesis, Urease Inhibition and Molecular Modelling Studies of Novel Derivatives of the Naturally Occurring β-Amyrenone. *Nat. Prod. Bioprospect.* DOI 10.1007/s13659-018-0193-7.

2- Jean J.K. Bankeu, Stéphanie Madjouka, Guy R.T. Feuya, **Yannick S.F. Fongang**, Sadaf Siddiqui, Iftikhar Ali, Lateef Mehreen, Bruno N. Lenta, Sammer Yousuf, Didérot T. Noungoué, Augustin S. Ngouela, Muhammad S. Ali, **2018**. Pobeguinine: a monoterpene indole alkaloid and other bioactive constituents from the stem bark of *Nauclea pobeguinii*. *Zeitschrift Für Naturforschung* C., doi.org/10.1515/znc-2017-0127.

3- Yannick, S.F. Fongang, Bankeu, J.J., Muhammad, S.A., Awantu, A.F., Zeeshan, A., Assob, C.N., Mehreen, Lateef, Lenta, B.N., Ngouela, S.A., Tsamo, E., **2017**. Butyrylcholinsterase inhibitors from two *Ficus* species (Moraceae). *The Journal of Phytopharmacology*; 6(4): 220-226.

4- Dawé, A., Mbiantcha, M., **Fongang, Y.**, Nana, W.Y., Yakai, F., Ateufack, G., Shaiq, M.A., Lubna, I., Lateef, M., Ngadjui, B.T., **2016**. Piptadenin, a Novel 3,4-secooleanane Triterpene and Piptadenamide, a New Ceramide from the stem bark of *Piptadeniastrum africana (Hook. f.) Brenan*. *Chemistry & Biodiversity*. Accepted Author Manuscript. doi:10.1002/cbdv.201600215.

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6- Mba'ning, B.M., Lenta, N.B., Noungoue, D.T., Antheaume, C., **Fongang, Y.F.**, Boyom, F.F., Rosenthal, P.J., Tsamo, E., Sewald, N., Laatsch, H., **2013**. Antiplasmodial triterpenes from the seeds of *Salacia longipes* var. Camerunensis. *Phytochemistry*. **96**:347- 352.

Fongang F.Y.S., Awantu A. F., Bankeu K. J. J., Amadou D., Kagho K. D., Mehreen L., Lenta N. Bruno, Muhammad S.A., Ngouela S.A., **2019**. Ligandrins A – C, New Pimarane Type Diterpenoids from *Croton oligandrus* Pierre ex. Hutch (Submitted)

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FONGANG FOTSING Yannick Stéphane received his B.S. (2006), M.S. with thesis in Organic Chemistry (2008), and Ph.D. in Organic Chemistry/Phytochemistry (2015, with Prof. Emeritus Etienne TSAMO and Prof. Silvère NGOUELA, Supervisors), all from the Department of Organic Chemistry, Faculty of science, University of Yaoundé I, Cameroon. He was recruited at the Department of Chemistry, Higher teachers training college of Maroua, University of Maroua (Cameroon) as an assistant Lecturer in 2012. I worked with Prof. Muhammad Shaiq Ali (from December 2012 to December 2013, as a TWAS-ICCBS advanced training fellowship; then from November 2017 to May 2018 as a TWAS-ICCBS Postdoctoral Fellow), at the Laboratory of Marine and Terrestrial Plants, International Center for Chemical and Biological Sciences, University of Karachi, Karachi, Pakistan. I have performed phytochemical studies on about 10 plants species, published 12 scientific papers in peer-reviewed international journals (04 others are already submitted and some 02 in final preparation). I am now Senior Lecturer, at the Department of Chemistry, Higher Teachers Training College (2016-present) and member of the Laboratory of Natural Products and Organic Synthesis. My current research interests involve the activity-directed isolation, structure elucidation, scientific writing/editing, as well as the synthesis/hemisynthesis and the structure–activity relationships of natural products from medically important plants.