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Development of a suppositories pilot batch of leaves and stems of Artemisia annua grown in Cameroon

Pierre Lutgen[1], Chougouo Kengne R D[2], Domko D F[2], Kouamouo J[2], Djoko E[2], Tane P[3] and **Wouessidjewe D[2,4]**
[1]IFBV-BELHERB, Luxembourg
[2]Université des Montagnes, Cameroon
[3]University of Dschang, Cameroon
[4]University of Joseph Fourier of Grenoble, France

Malaria is the most deadly disease that concerns mostly African children under the age of 5. It is a difficult treatment because of drug resistance to conventional molecules leads to the use of Artemisinin-based combination therapy (ACT) recommended by WHO. Several studies showed that the infusion of *A. annua* is more efficient than ACT after 7 days of treatment, but hardly accepted by children mostly those less than 2 years old because of the quantity to administration. The present study is to put in place a more acceptable dosage form for children suppositories made from *A. annua* grown in Cameroon. To evaluate its quality, the powder of leaves and stems of *A. annua* has been submitted to physicochemical analysis. The particle size was isolated by the sieve method and laser diffraction. Artemisinin was determined by TLC-densitometry and then was read through MESURIM software. Entire flavonoids were titrated by aluminum chloride. The formula of medicines was established and suppositories were submitted for pharmacotechnical tests. The powder obtained was of bitter taste, greyish-green and with characteristic odor (camphor), was homogeneous with 56.37% of particles in the sieve of diameter over or equal to 63 µm. The artemisinin and entire flavonoids contents were respectively of 5 mg/g and 0.43 mg equivalent to quercetin per gram of dry matter. 250 mg suppositories of active principle have been made knowing that, 1g of *A. annua* powder moves 0.72 g of Suppocire C. They are dark-green, shiny, smooth and barrel-shaped. Their average weight was 2.15 g, disintegration time was 8 min 16 s and the fusion point was 35.7 oC. The made *A. annua* suppositories were in conformity with European pharmacopoeia. The suppositories will contribute to a better treatment of malaria among children.

lutgenp@gmail.com

Tailored microwave technology for synthesis of *N'*-[(3Z)-5-chloro-1-(morpholin-4-ylmethyl)-2-oxo-1,2-dihydro-3H-indol-3-ylidene]pyridine-4-carbohydrazide as HIV-1 inhibitors

Rahul Hajare[1], Smita Kulkarni[2] and **Ramesh Paranjape[2]**
[1]Aarti Drugs Limited, India
[2]National AIDS Research Institute, India

Reaction of that with 5-Chloro Isatin (1.85 g, 0.007 mol), with morpholin (0.6 g, 0.007 mol) in the presence of catalytic amount of formaldehyde (0.3 g, 0.01 mol) and solvent ethanol (20 ml) when reflux and stirred for 4 h lead to the *N*-morpholinomethyl-indole-2, 3-dione. Engineered microwave technology for synthesis of *N'*-[(3Z)-5-chloro-1-(morpholin-4-ylmethyl)-2-oxo-1,2-dihydro-3*H*-indol-3-ylidene]pyridine-4 carbohydrazide as HIV-1 inhibitor begins with a mix reaction to remove protecting ketone group in N-morpholinomethyl-indole-2, 3-dione 0.002M by means of 4-pyridinecarbohydrazide 0.002 M treatment with glacial acetic acid (2 ml) and solvent charge with 40 ml of ethanol and reflux with stirring for 1 hour. For ventilation, engineered microwave ovens have a built-in blower for a recirculating venting system, designed for over-the-range installation, offered two more options for venting to the outdoors. The blower can be positioned to direct exhaust air up and out through the roof via duct and harmful impurity gets effluxed through horizontally ductwork. *In vitro* anti-HIV-1 activity of *N'*-[(3Z)-5-chloro-1-(morpholin-4-ylmethyl)-2-oxo-1,2-dihydro-3H-indol 3-ylidene]pyridine-4-carbohydrazide and further studies have suggested that this is a novel molecule and has cytotoxicity of 120.07 ug/ml for cell lines, TZM-bl. It displayed potent anti-HIV-1 activity and was found to be 25.65 µg per ml against laboratory adapted strains of National AIDS Research Institute, Pune, India.

rahulhajare@rediffmail.com