

## Stem Cell Research 2018-Depletion of Hepatic Antioxidant Enzymes in Experimental Albino Rats Due to Polyherbal Medicines Administration- Sunday Adeola Emaleku- Adekunle Ajasin University

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### Abstract

Plants and their by-products have been real sources of food and medicine for humans and animals from the start, and the urgency of polyherbs (plant products) has received publicity and patronage in recent years. of the Nigerian population as alternative medicines. . It is no exaggeration to say that many of them lack empirical or validation data to support the upsurge and prevalence of their use as traditional medicines, and little or no scientific data exists on their potential side effects. . . This study therefore studies "the effects of some of these herbal medicines on liver antioxidants in the experimental rat".

The discovery since prehistoric times that plant products, in addition to their nutritional values, could serve as therapeutic weapons against various human, animal and even plant diseases has made plants a sine qua non condition for human and animal life, and has leads to the formulation of many herbal and / or polyherbal medicines. Polyherbs are herbal medicines derived from plants, commonly known as "herbs or herbs", and are currently recognized and recognized as the most common form of alternative medicine in recent years. According to Pieme et al. , these are herbal recipes in the form of teas or extracts often prepared from combinations of two or more plants and / or plant products which contain active constituents with multiple physiological activities. They could be used in the treatment of many diseases, and their use as herbal remedies in the treatment of various diseases is gaining popularity; making it the main place of residence of the health system, especially among the rural population of developing countries. In fact, according to Ogonnia et al. , about 60% of the world's population, in both developed and developing countries where modern medicines are used, mainly uses medicinal plants or plants for therapeutic purposes. Some of these polyherbal formulations are; Evans Healthy Bitter, Yoyo Bitter, Fidson Bitter, Swedish Bitter, Oroki Herbal Mix, Pax Herbal Mix, Asheitu

Adams Blood Purifier, Asheitu Adams Formula for Diabete, Goko Cleanser, Living Bitter etc. and their various manufacturers have claimed that they can cure and / or prevent all kinds of diseases when used in the recommended doses. For example, the manufacturer of the herbal mixture Oroki claimed that it was formulated for hair, dysentery, constipation, diarrhea, waist and stomach pain, etc., while the healthy bitter from manufacturer Evans said so; it could stimulate and maintain the production and flow of bile, improve digestion and appetite, give a feeling of well-being, etc., and the manufacturer of Fidson bitter recommends it for poor digestion, painful digestion, loss of energy, lack of appetite, anemia, immune disorders, bacterial and viral infections, intestinal cramps, etc. However, despite all these therapeutic uses / medicinal benefits recognized by these medicinal plants by manufacturers, as well as their wide public sponsorship, there is little or no scientific information (empirical data) on the effects of these polyherbs on antioxidants in vivo, because according to Adeyemi et al. , scientific data on the safety and toxicity profiles of these medicinal plants are scarce. Recent studies have demonstrated the need to subject some of these herbal mixtures (herbal medicines) to scientific review and systemic approach assessments to verify their effectiveness, side effects, toxicity and limitations safety through clinical trials and results, and more importantly because there are no strict government regulations in Nigeria on herbal / polyherbal medicines as is the case with conventional medicines.

### Materials and Methods

#### Chemicals and reagents

Epinephrine - E1635-5G, ascorbic acid - A92902-100G, iodine solution - 053-001-00-3, Ellmans reagent (5, 5-dithiobis-2-nitro benzoic acid (DTNB)) - D218200-5G , hydrogen peroxide - 18312 used are products of Sigma-Aldrich, USA and Germany, while sodium hydrogencarbonate-102474V, hydrochloric

acid-10125-4H, reagent dichromate-acetic acid (potassium dichromate- 10202 and glacial acetic acid 27013) are products of BDH Laboratory Supplies, Poole England. All other chemicals and reagents used are of analytical grade.

#### Herbal medicines

Evans Healthy Bitter was purchased from Evans Medical PLC, KM 32, Lagos-Badagry Expressway, Lagos; Bitter Yoyo from Ablatt Pharmaceutical Limited, Lagos; Fidson bitter from Fidson Healthcare PLC, 268 Ikorodu Road, Lagos; Swedish Amer of Starling Nigeria Limited, Surulere, Lagos; Mixture of Oroki plants from Nure Ind. & Comm. Company, Ijaye, Lagos; Pax herbal blend from a pharmaceutical store, Ajegunle, Lagos; while the Asheitu Adams Blood Purifier (ABP) and the Asheitu Adams Diabetes Formula (AD) were obtained from the company's distributor in Ikorodu Market, Lagos.

#### Laboratory animals

Forty-five growing male albino rats with an average weight of  $212 \pm 22.18$  g were purchased from the Animal Facility Center of the University of Lagos, College of Medicine, Idi-Araba. They were randomly divided into nine groups of five animals each after two weeks of acclimatization, and received the various polyherbal drugs orally according to the doses recommended by their manufacturers once a day for seven weeks using an oral cannula. The treatments were as follows: Group 1: Control 0.25 ml of distilled water Group 2: Fidson bitters 0.000290 ml / g of body weight (61.5  $\mu$ l for 212 g) Group 3: Asheitu Adams Blood Purifier 0, 000290 ml / g body weight (61.5  $\mu$ l per 212 g) Group 4: Swedish bitters 0.000290 ml / g body weight (61.5  $\mu$ l per 212 g) Group 5: Yoyo Bitters 0.000429 ml / g of body weight (91.0  $\mu$ l for 212 g) Group 6: Asheitu Adams formula for diabetes 0.000290 ml / g of body weight (61.5  $\mu$ l for 212 g) Group 7: Mixtures of Pax plants 0.000290 ml / g body weight (61.5  $\mu$ l / 212 g) Group 8: Oroki plant mixes 0.001143 ml / g body weight (242.3  $\mu$ l / 212 g) Group 9: Evans Healthy Bitters, 0.000143 ml / g body weight (30.3  $\mu$ l / 212 g) which also conforms to the National Institutes of Health guide for the care and use of laboratory animals. They were fed ad libitum with certified food (Grow Fast Mash; Animal Care Feeds), NAFDAC Reg.

NO: A9-0025 and clean tap water in iron gauze cages covered with wooden shavers, at room temperature with adequate ventilation under 12 h of lighting / natural light and 12 h of darkness in the Middle School. At the end of the study period, the animals were sacrificed by cervical luxation after 12 hours of fasting overnight, and the livers were quickly removed, washed in an ice cold solution of 1.15% KCl, weighed and kept in simple sterile bottles containing 10% formaldehyde for storage before being treated for antioxidant analyzes.

#### Conclusion

All herbal medicines have caused the exhaustion of the liver's antioxidant enzymes (SOD and GST), which indicates an oxidative stress condition, but some of them have improved non-enzymatic antioxidants like malondialdehyde (MDA) and vitamin C.

#### References

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