

SOME BIOACTIVE PLANTS FROM SOUTH WESTERN NIGERIA

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- ¹PHARMACEUTICS/ PHARMACEUTICAL TECHNOLOGY
- ²PHARMACOGNOSY
- ³MEDICINAL/ PHARMACEUTICAL CHEMISTRY
- ⁴CLINICAL PHARMACY

Main Research Thrust

- **Ethnobotanical survey in Ogun State**
- **Biodiversity study**
- **Anti-inflammatory**
(Inflamed rat's paw model)
- **Antidiabetic**
(Alloxan induced diabetic rats model)
- **Vasodilatory/ antihypertensive**

Ethnobotanical study

- Study area: Five LGA's
Sagamu LGA, Abeokuta South LGA,
Ado-Odo/Otta LGA, Ijebu-Ode LGA,
Ijebu North LGA
- Questionnaire: 103 to TMP's, herbalists
and herb sellers
personal information, practice, recipes

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- Seven principal antidiabetic plants were identified

Biodiversity

- Identification/authentication of medicinal flora
- Categorisation of plants according to medicinal usage e. g. malaria, diabetes, skin diseases, inflammatory conditions etc
- Herbarium Documentation
- Database

Materials and Methods

- *Plant materials and extraction*
- *Animals*
- *Evaluation of anti-inflammatory activity*
- *Evaluation of antidiabetic activity*

Anti-inflammatory activity (in vivo)

- Formalin-induced rat hind paw oedema model
- Six groups of five each and fasted for 24h
- Dose: 50, 100, 200 and 400 mg/kg of extract
- Controls: 300 mg/kg aspirin (+), 1ml/kg normal saline (-)

- paw circumference: at 0 h; and at 2, 3, 24, 48 and 72h after formalin/ carrageenan injection
- percentage inhibition: at 2h and 3h



- Results:

Seven promising antiinflammatory plants were identified

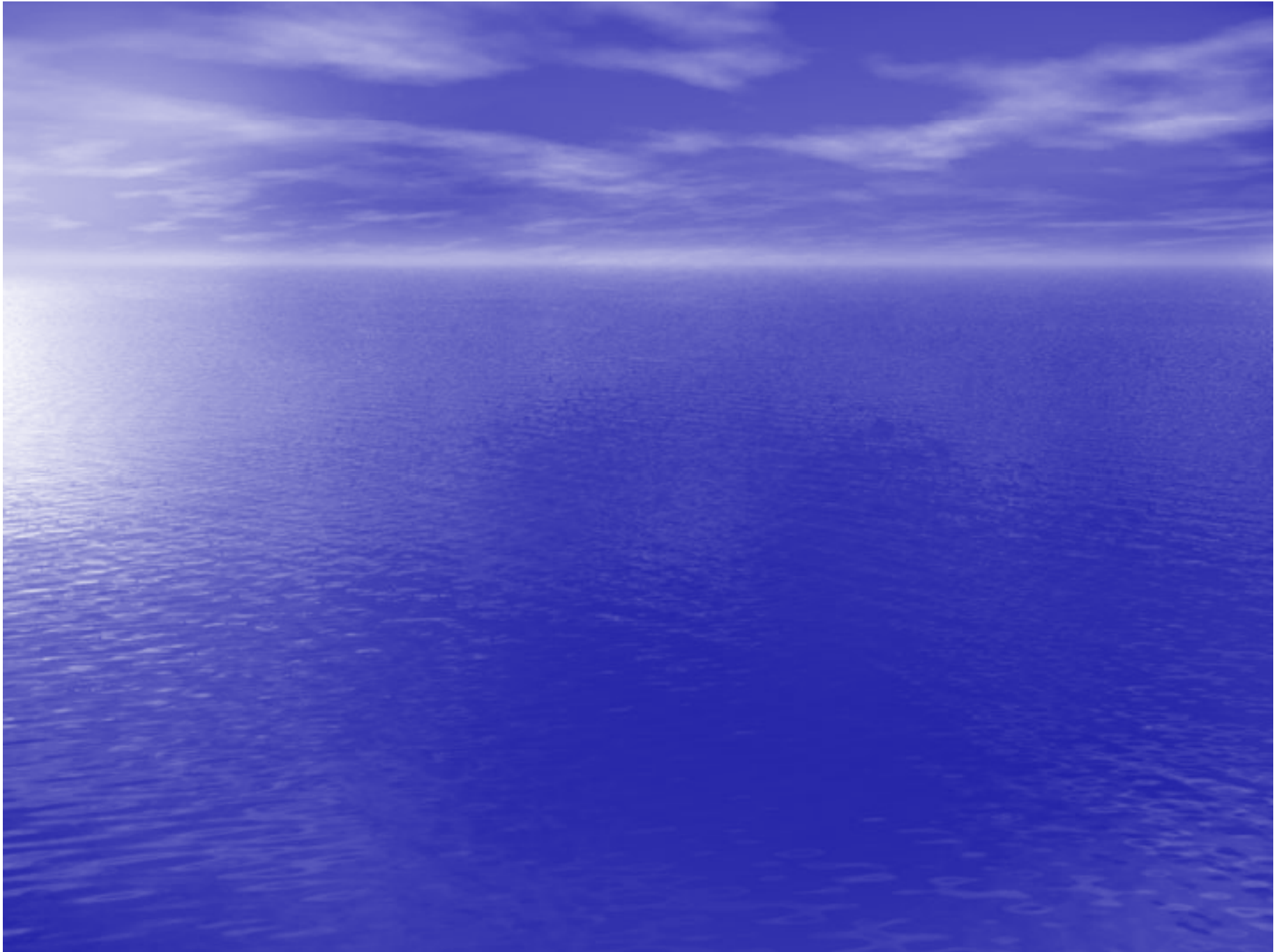
Antidiabetic activity

- 18h fast before induction of diabetes
- 180 mg/kg of alloxan monohydrate
- Confirmation of diabetes, when
Fasting Blood Glucose >150mg/kg
- Oral dosing: 100, 150, 250 mg/kg
100 mg/kg chlorpropamide (+) or
1 ml/kg normal saline (-)

- FBG: at 0 h; periodically up to 24 h (acute study)
- Daily dosing/ FBG: 2 - 4 weeks (prolonged study)
- Weight determination

2 plants from survey showed promising antidiabetic activity

Significant reduction of fasting blood glucose (83.3-86.7%) and total cholesterol/ total triglycerides (55.8% reduction at 150 mg/kg; 67.5% reduction at 250 mg/kg) after 2 weeks



- **Vasodilatory/ antihypertensive**
A recipe containing 5 plants was investigated

Methodology (receptor activity)

- Preparation of rabbit ileum
- Dose response study
 - 0.001-0.512 mg/ml extract in bath
 - changes in tension of ileum recorded
- Receptor activity screening
 - (1) wash above
 - (2) 0.256 mg/ml extract added
 - (3) relaxation or contraction compared with atropine, promethazine

Methodology (vasodilatory)

- Preparation of rabbit aorta in organ bath
- Precontraction with nor-adrenaline
- Dose dependent study
0.02-1.28 mg/ml extract used
changes in tension of aorta
recorded periodically

Antihypertensive activity

- Recipe reversed nor-adrenaline induced- contractility of rabbit aorta at 0.02-1.28 mg/ml. (vasodilatory effect)
- Recipe antagonized the relaxation effect of adrenaline on rabbit ileum at 0.001-0.512 mg/ml. (probably acting as α or β blocker)

Way forward

- Anti-inflammatory/ Antidiabetic studies
 - (1) *in vitro* study to complement *in vivo*
 - (2) bioactivity-guided fractionation
- Antihypertensive- bioactivity-guided fractionation
- Ethnobotanical survey/ Biodiversity
 - (1) compilation of database
 - (2) future screening/ formulation

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THANK YOU
FOR
YOUR
ATTENTION