

OP 11

Rapid onset of action of costus speciosus leaf extracts on insulin resistance in experimental wistar rats

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Objectives: To evaluate the effect of *Costus speciosus* leaf methanol and water extracts on insulin resistance.

Methods: Male rats were divided into five groups (n=6) and IR was induced by high fat diet (19.13% fats). CS leaf methanol extract (CSImex) and water extract (CSlwex) were prepared using standard methods. Rats were treated daily for 30 days. Group1: 0.5% Carboxy methyl cellulose (CMC) 1ml, Group2: 500 mg/kg/day CSImex in CMC, Group3: 500 mg/kg/day CSLwex, Group4: 1500 mg/kg/day CSLwex, Group5: Pioglitazone 10mg/kg/day. Serum was analysed for glucose, triglycerides and insulin at baseline and after one month. IR was calculated using indirect indices; HOMA, QUICKI and McAuley (McA).

Results: All CS extracts significantly reduced the IR ($p < 0.05$). 500mg/kg CSImex reduced IR by HOMA, QUICKI, McA by 61.3%, 15.6%, 39.8% while 1500mg/kg CSLwex reduced HOMA by 66.6%, QUICKI by 16.1% and McA by 36.5% respectively. There was no significant change of IR in CMC group ($p > 0.05$). IR had been reduced by pioglitazone (HOMA 32.4%, QUICKI 12.5%, McA 10%) after one month but not statistically significant ($p > 0.05$).

Conclusion: CS leaf water and methanol extracts are effective on reducing IR in rats. Pioglitazone was used as the positive control. Previous scientists had shown that pioglitazone needs minimum of three months to make a significant therapeutic effect on IR although pharmacological effect appears after one month. Our finding shows that CS may have a rapid onset of action on IR based on our biochemical evidence compared to pioglitazone. Therefore, pharmacodynamic studies are recommended to evaluate the dose response relationship.