

# EFFECTS OF CAMEL MILK ON DRUG METABOLISING CYTOCHROME P450 ENZYMES EXPRESSIONS IN RATS

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## ABSTRACT

Cytochrome P450 (CYPs) constitutes the major enzyme family capable of catalysing the oxidative biotransformation of most drugs. These are affected by a large number of factors including environmental elements. Widely practiced drinking of camel milk as a nutrient, therapy for some disease or even adjuvant with some drugs make it mandatory to investigate the possible CYPs modulator effects of camel milk. Forty-eight male Wistar rats were divided into 6 groups of 8 rats each. Groups were allocated as control, Camel milk (CM) treated, Sudan III (S.III) treated, S.III +CM, Phenobarbital (PB) or PB+CM.

CYP3A2, CYP 2B1, CYP 1A1 and CYP 1A2 mRNA were measured by semi-quantitative RT-PCR. Results showed that camel milk supplementation reduced the mRNA expression of basal and PB induced CYP3A2 and CYP2B1. Camel milk also reduced the mRNA expression of the basal levels of CYP1A2 and the S.III or PB induced CYP1A2 and CYP1A1. These results indicates that camel milk supplementation down regulated hepatic CYP3A2, CYP2B1, CYP1A1 and CYP1A2 mRNA expressions either their basal control or induced levels with PB or S.III. This may operate mainly through camel anti-CAR effect. This may indicate camel milk potential anticancer effect through preventing the activation of procarcinogenes to carcinogenes. These results also imply that CM affects the metabolism of drugs metabolised by these enzymes.

**Key words:** Camel milk, CYPs, PB, S.III

**Abbreviations:** (CYPs), Cytochrome P450; (PB), Phenobarbital; CAR, consistutive active androstane receptor; S.III, Sudan III; RT-PCR, reverse transcription-polymerase chain reaction; CM, camel milk; STAT3, signal transducer and activator of transcription 3; NF-κB, nuclear factor kappa beta; (AhR), Arylhydrocarbon receptor; CITCO, 6-(4-Chlorophenyl) imidazo [2,1-b] [1,3] thiazole-5-carbaldehyde O-3,4-dichlorobenzyl oxime (A novel potent and selective CAR agonist; CCL3 (MIP-1α), Chemokine (C-C motif) ligand 3 (CCL3) also known as macrophage inflammatory protein 1-alpha; AMPK, 5' adenosine monophosphate-activated protein kinase; p38, Mitogen-activated protein kinase 14, also called p38-α; B[a]P, Benzo [a] pyrene; 7,12-DMBA, 7,12-Dimethylbenz [a] anthracene; 3-MC, 3-Methylcholanthrene; co-planar PCB, Coplanar polychlorinated biphenyls; TCDD, 2,3,7,8-tetrachlorodibenzo-p-dioxin.