# IN-VITRO ASSESSMENT OF PHYLLANTHUS DEBILIS FOR HEPATOPROTECTIVE ACTIVITY AGAINST DAMAGE INDUCED BY PARACETAMOL ON HEPG2 CELLS

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Paracetamol (acetaminophen) is used as an analgesic and antipyretic drug globally and is considered an intentional self-poisoning drug. Paracetamol (PCM) overdose causes deaths and liver failure. *P.debilis* is an herbal plant to treat liver diseases. Porridge of the *P.debilis* plant is used in traditional medicine to treat liver diseases. The present investigation was focused on the hepatoprotective effect of aerial and root parts of *P.debilis* plant in paracetamol induced toxicity. Aerial (PAP) and root (PRP) parts of *P.debilis* plants were refluxed (50g) separately for 3hrs with deionized water. Pre evaluated non-toxic concentrations of plant extracts (<100 $\mu$g/ml) were co-treated with a lethal dose of PCM (30mM) on HepG2 cells for 24 hours. Cell viability was determined using total protein contentin the cell lysate after 24 hour incubation time. Percentage leakage of lactate dehydrogenase (LDH) and alanine aminotransferase (ALT) activity in the spent medium was also evaluated after 24 hour co-exposure of plant extracts with PCM (30mM). Ethidium bromide and acridine orange staining were carried out to determine the mode of cell death and examined under the fluorescent microscope. Cell viability was increased with the co-treatment of PRP and PAP with PCM (30mM) in concentration dependent manner which initially declined with the treatment of PCM (30mM). LDH is a cytoplasmic enzyme present in almost all eukaryotic cells which is a sensitive assay for the evaluation of cytotoxicity. Percentage LDH leakage to the medium was reduced with the treatment of PRP and PAP which was initially induced by PCM (30mM). Cell damage associated with PCM was assayed by the measurement of ALT levels in the medium. Significant dose dependent reduction of cytotoxicity was observed with the treatment of PRP and PAP ($p<0.05$). Ethidium bromide and acridine orange dual stain results demonstrated that red to orange colour dead cells with PCM treatment was reduced and turned to green colour live cells with the co-treatment of PRP and PAP (84 $\mu$g/ml). PCM induced hepatotoxicity is reduced with the co-treatment of PRP and PAP in a concentration dependent manner.

**Keywords:** Hepato protective, HepG2, *P.debilis*.