

CELL LINE BASED RESEARCH ON HEPATO PROTECTIVE PLANTS MENTIONED IN AYURVEDA: A REVIEW

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Management of liver diseases and finding solutions for over hundred well known liver diseases with diversified etiopathology are a challenge. The most hepatic diseases include infectious agents, fatty liver disease, liver injury, and genetic liver diseases, autoimmune hepatitis, liver cirrhosis, and liver cancer. Jaundice and hepatitis are two major hepatic disorders leading to a high death rate. Exposure of the liver to free radicals derived from some xenobiotic leads to oxidative stress causing liver injury. Most of hepatotoxic chemicals damage liver cells by lipid peroxidation and other oxidative damage. The oxidation process generates oxygen species causing damage to living organisms. The oxygen centered free radicals and other reactive oxygen species (ROS), result in cell death or tissue damage. The natural plant based antioxidants are important and a number of medicinal preparations in Ayurveda are recommended for treatment of liver disorder. Despite advances in modern medicine, effective and reliable drugs that can stimulate liver functions are lacking. The therapeutic values on hepatic protection were tested against a few chemical-induced subclinical levels of liver damages. Cell line research on *Terminalia bellerica*, *Inula racemosa*, *Aloe indicum*, *Solunum nigrum*, *Boerhaavia diffusa*, *Picrorhiza kurroa*, *Tinospora cordifolia*, *Zingiber officinale*, *Berberis aristata*, *Terminalia chebula*, *Azadirachta indica*, *Trichosanthes dioica*, and *Rumex vesicarius*, *Eclipta prostrate*, *Moringa oleifera*, *Phyllanthus amarus* and *Terminalia arjuna* are proven to have certain hepatoprotective action. These plants are also used in medication for “Paandu”, “Kaamala”, “Udara,” “Visha”, “Arshas” and “Vishamajwara” in Ayurveda. For the reviewing purpose, 190 plants were selected from the standard ayurvedic texts “Vruddatra”, “Laguthra” and “Deshiya Chikithsa Sangraha”. For the literature study “Ayurvedic samprapthi” of the selected diseases with liver pathogenesis of modern co-relation of the diseases were compared. Seventeen cell line research articles that gave general hepatoprotective action of the discovered plants were reviewed to identify their correlation of Ayurvedic diseases with modern pathologies. To develop satisfactory herbal combinations to treat severe liver diseases, plants have to be evaluated at molecular level studies, systematically for properties such as antiviral activity, anti-hepatotoxicity, stimulation of liver regeneration. The plants with remarkable activities for hepatic protection have to be identified. Development of hepatic protective medicines with standards of safety and efficacy can improve the treatments of liver disorders.

Keywords: Hepato protection, Cell lines, Liver function