

# **$\beta$ -Carboline and Quinoline Alkaloids in Root Cultures and Intact Plants of *Peganum harmala***

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Alkaloid profiles of root and shoot cultures, seedlings and mature plants were analysed by capillary GLC and GLC-MS.  $\beta$ -Carboline alkaloids, such as harmine, harmaline dominate in normal and root cultures transformed by *Agrobacterium rhizogenes*, as well as in roots and fruits of the plant. In shoots, flowers and shoot cultures quinoline alkaloids such as peganine, deoxypeganine, vasicinone and deoxyvasicinone widely replace the  $\beta$ -carboline alkaloids. In root cultures, the formation of  $\beta$ -carboline alkaloids can be induced by methyljasmonate and several other elicitors indicating that these alkaloids are part of the reactive chemical defence system of *Peganum harmala*.

*Key words:* Root Cultures, Shoot Cultures, Alkaloid Induction