

# Recent Progress in Medicinal Plants

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*Metabolic Disorders*  
*Hyperlipidemia*



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*Foreword to the Series*  
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## Efficacy of Piperine from *Piper nigrum* in metabolic disorders: A Review

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### ABSTRACT

*Piperine (1-piperoylpiperidine), a pungent nitrogenous substance is an alkaloid derived from black pepper (Piper nigrum) and long pepper (Piper longum). Metabolic disorders such as obesity, insulin resistance, dyslipidemia and hypertension is becoming an alarming concern for the developed as well as the developing world. Several beneficial physiological and pharmacological properties of black pepper and piperine have been reported, including preventing oxidative damage, lowering lipid peroxidation and enhancing the bioavailability of some therapeutic drugs. Furthermore, it reduces total cholesterol, free fatty acids, phospholipids and triglycerides in plasma and tissue of rats on high fat diet. The mechanisms for these effects may include a complex interaction of the lipophilic piperine with cell membrane and enzymes controlling oxidative stress. The presence of double bond, delocalized  $\pi$  electrons and adjacent electron-donating heteroatoms suggest that piperine form stable species with small reactive radical species. Piperine is pharmacologically safe and is on the list of compounds "generally regarded as safe" according to US Food and Drug Administration (FDA). Thus, Piperine is a promising therapeutic agent for metabolic disorders.*

**Key Words:** Piperine, *Piper nigrum*, Metabolic disorders

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### INTRODUCTION

Obesity and metabolic syndrome are increasing global health problems. Metabolic syndrome has been identified by different consortia, of which the first functioning definition was provided by the World Health Organization (WHO). According to WHO, three or five criteria must be fulfilled (a)

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