



**COMPARATIVE STUDY OF DIFFERENT PARTS OF *AZADIRACHTA INDICA*
(NEEM) PLANT ON THE BASIS OF ANTIBACTERIAL ACTIVITY,
PHYTOCHEMICAL SCREENING AND ITS EFFECT ON RAT PC-12
(PHEOCHROMOCYTOMA) CELL LINE**

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ABSTRACT

The antimicrobial sensitivity test was done to ensure the presence of antibacterial activity in aqueous and alcoholic (methanolic and ethanolic) extracts of different parts of the neem plant, which was found to be much greater in methanolic extract of seeds as compared to the others parts. Sensitivity was checked against one gram positive (*Bacillus amyloliquefaciens*) and one gram negative (*E.coli*) by well diffusion method and inhibition of zone was calculated. The phytochemical analysis was done in order to check the active component of different parts of neem plant and it revealed the presence of flavonoids while tannins, saponins, alkaloids and phenoloic compounds were absent in neem seeds. The presence of flavonoids urged us to check the neuroprotective effects of neem (*Azadirachta indica*) seed on rat PC-12 (Pheochromocytoma) cell line. The test performed using ethanolic extract of seeds on the cells exposed to neurotoxic shock using 6-Hydroxydopamine (6-OHDA) revealed neuroprotective effects as 90% of live cells were found in the cells treated with 6-OHDA and ethanolic extract of seeds as compared to the cells treated only with 6-OHDA that contained only 35% of live cells. Therefore it may be used as a supplement for the patients suffering from Parkinson's and others neurological disorders.

Keywords: Antimicrobial Activity, Phytochemical Screening, Pheochromocytoma, 6-OHDA

INTRODUCTION

Herbal plants are used in a universal chemistry found in healing plants for their phenomenon. Every culture on earth has therapeutic properties. All drugs of the past relied on the huge variety of natural were substances with a particular