

Department of Biochemistry, HIMSR  
Jamia Hamdard, New Delhi-110062

Award of Ph.D. Degree

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Following the recommendations of the thesis and viva-voce examiners, Jamia hamdard has accepted the thesis of following candidate of the Hamdard Institute of Medical Sciences & Research and awarded the degree of **Ph.D. in Medical Biochemistry**.

**Name of the Scholar:** Kailash Chandra

**Research Supervisor:** Prof. S. K. Jain

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**Date of viva-voce examination:** March 13, 2019

**Thesis title:** Therapeutic Potential of *Cichorium intybus* seeds on Type 2 Diabetes Mellitus

**Brief summary of qualifying research**

Type 2 diabetes mellitus (T2DM) is a serious and fast-growing health problem worldwide. It is a chronic, progressive metabolic condition primarily characterized by hyperglycemia due to impaired insulin secretion, resistance to action of insulin or combination of both. While the macro and microvascular complications in uncontrolled diabetes mellitus are well known, its treatment in achieving the recommended HbA1c targets still remains challenging. Despite substantial progress made during last 50 years, the outcome of treatment in majority of the patients is still far from perfect. Drug resistance (reduction of efficiency), side effects and even toxicity are the disadvantages of available treatment options. Therefore, many patients seek additional remedy from natural plant extracts. The herbal drugs used in traditional systems have significant efficacy and usually have no or relatively less side effects. With an aim to find herbal supplement with potential to decrease not only hyperglycemia but also target oxidative stress, inflammation, and plasma fatty acid mobilization, present study was undertaken. We report that aqueous extract of *Cichorium intybus* seeds (**AECIS**) is effective as antihyperglycemic, antihypertriglyceridemic, antioxidant and anti-inflammatory agent and is beneficial in management of T2DM. Besides, it has no toxicological ill effect and the fact that it has been used in traditional systems of medicine for several other ailments, it can be considered very safe to use. The docking studies revealed that three constituents of AECIS, namely, dihydrolactucin, dihydroxyflavanone and coumarin are good candidate markers for evaluation of its antidiabetic activity. Limited clinical study has validated its strong potential for development of a phytopharmaceutical as remedy and/or adjuvant to modern medicines for management of type 2 diabetes mellitus and other abnormalities of metabolic syndrome.