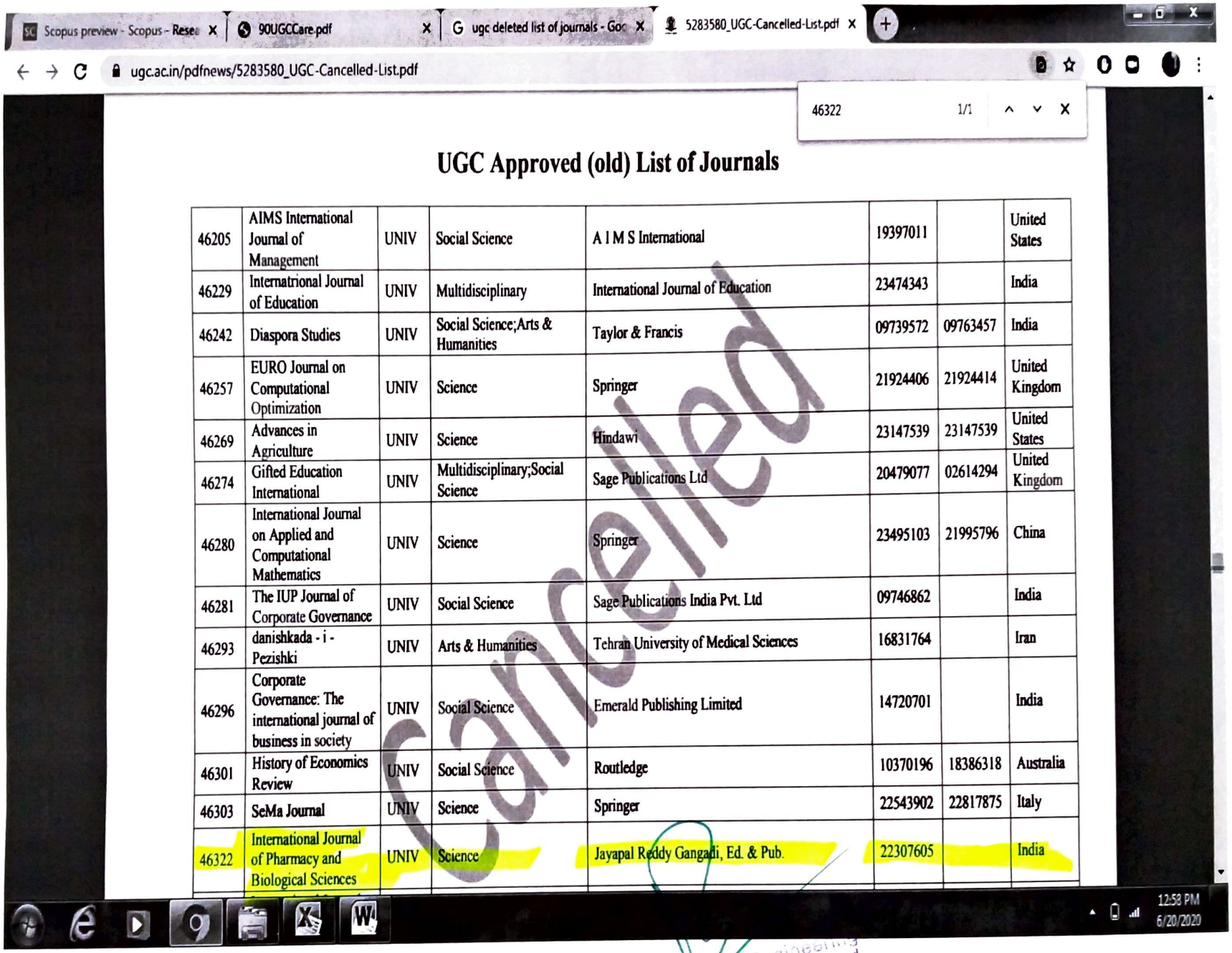

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46205	AIMS International Journal of Management	UNIV	Social Science	A I M S International	19397011		United States
46229	Internatrional Journal of Education	UNIV	Multidisciplinary	International Journal of Education	23474343		India
46242	Diaspora Studies	UNIV	Social Science;Arts & Humanities	Taylor & Francis	09739572	09763457	India
46257	EURO Journal on Computational Optimization	UNIV	Science	Springer	21924406	21924414	United Kingdom
46269	Advances in Agriculture	UNIV	Science	Hindawi	23147539	23147539	United States
46274	Gifted Education International	UNIV	Multidisciplinary;Social Science	Sage Publications Ltd	20479077	02614294	United Kingdom
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46296	Corporate Governance: The international journal of business in society	UNIV	Social Science	Emerald Publishing Limited	14720701		India
46301	History of Economics Review	UNIV	Social Science	Routledge	10370196	18386318	Australia
46303	SeMa Journal	UNIV	Science	Springer	22543902	22817875	Italy
46322	International Journal of Pharmacy and Biological Sciences	UNIV	Science	Jayapal Reddy Gangadi, Ed. & Pub.	22307605		India

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ENZYME ASSISTED BIOACTIVE EXTRACTION FROM *FLACOURTIA MONTANA* AND INVESTIGATION OF ITS *IN-VITRO* ANTIOXIDANT AND ANTI-DIABETIC ACTIVITY

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ABSTRACT

Flacourtia species are known for medicinal properties since ancient times. Here in we report the efficacy of the enzyme assisted extraction of bioactive compounds from *Flacourtia montana* leaf using three different enzymes and in combination of same enzymes. The extraction was carried out by enzyme formulations which contained cellulase, pectinase and amylase in water bath at a temperature of 50°C for 3 hours. Further the extract were used to determine the phenolic content, flavonoid content, antioxidant and anti-diabetic properties. The combination of enzyme used for extraction showed maximum total phenolic and total flavonoid content. The extract also showed strongest antioxidant activities and antidiabetic activity compared to other methods. The TPC ranged from 54.22± 1.25 to 31.25 ± 1.02 mg GAE/g of DW, TFC ranged from 21.77 ± 0.54 to 8.72 ± 0.2 mg QE/g of DW and TAC was found to be 149.83± 4.4 to 88.16 ± 6.0 mg EAA/g of DW. The IC50 values for anti-diabetic properties varied from 300 ± 0.01 µg/ml to 910 ± 0.02 µg/ml.

KEY WORDS

Cellulase, Amylase, Antioxidant activity, Antidiabetic activity, Enzyme extraction, Flacourtia montana, Pectinase.

INTRODUCTION

Plant based medicines are used for combating diseases since ancient times due to the presence of a large number of bioactive compounds [1], hence there is a continuous search for medicinal plants that are of rich in these compounds. It has been reported that among more than 25,000 secondary metabolites that have been identified in plants [2], phenolic compounds found to distributed in all parts of higher plants shown to exhibits high degree of free radical scavenging property which may be the prime reason behind antioxidant activity, anti-tumor, antibacterial, anti-aging, anti-allergic, anti-inflammatory and antidiabetic properties [3,4]. The increased demand for the antioxidants and antidiabetic activities from natural compounds have encouraged the research studies about enhanced extraction process. The conventional techniques of plant materials extraction are usually based on the choice of solvents and the use of heat to increase the solubility of the desired compounds. Usually, conventional techniques require longer extraction time, thus running a risk of thermal degradation of some of the bioactive compounds [5]. The solvents used in the extraction also increase the risk of environmental pollution. In last few years many new alternative methods have been developed for the extraction of phytochemicals from plants such as ultrasound-assisted extraction(UAE), enzyme assisted extraction(EAE),