The 5th International Symposium on Edible & Medical Plant Resources and the Bioactive Ingredients

第五届可食和药用植物资源及功能成分国际学术研讨会

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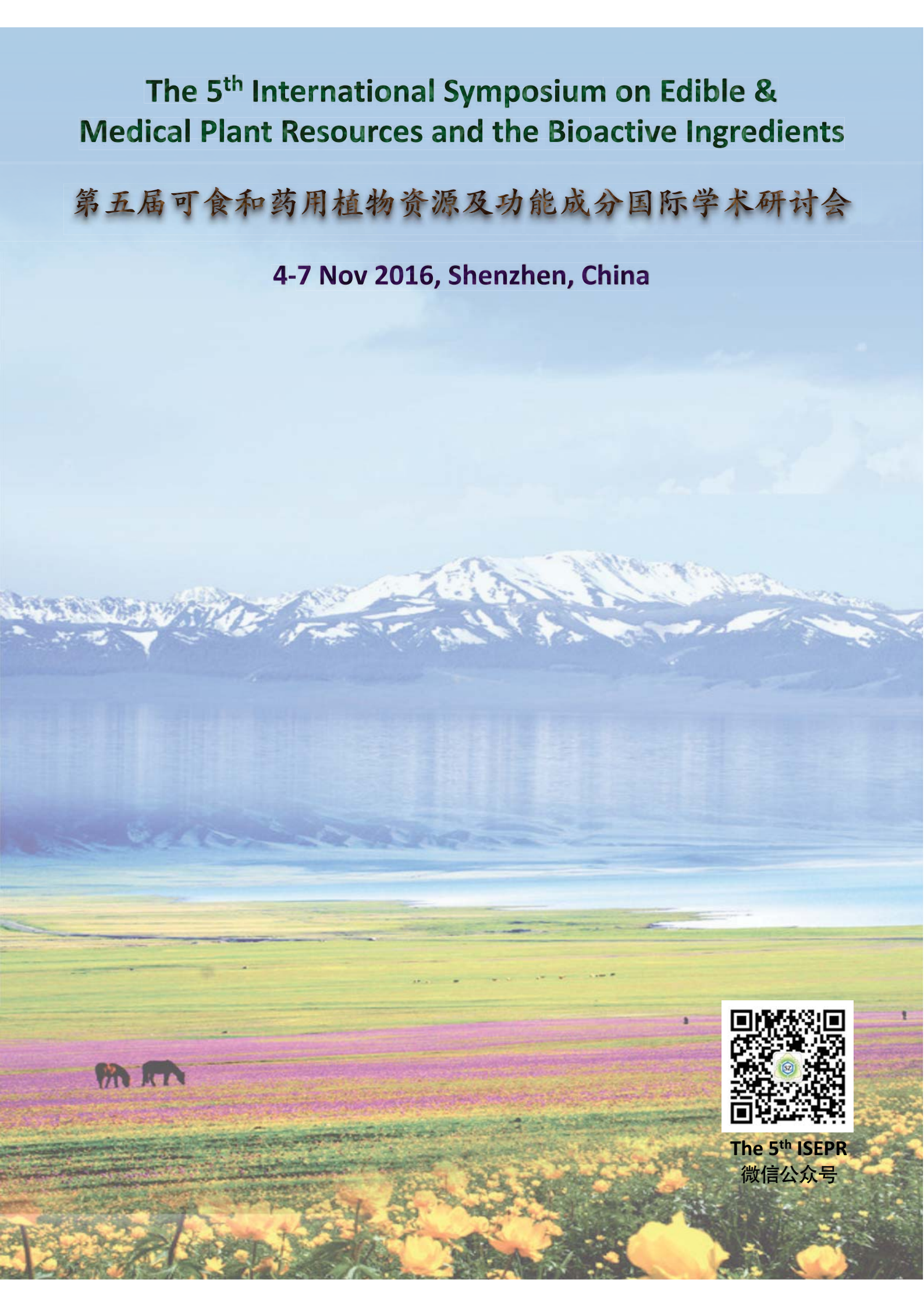

The 5th ISEPR
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Host：

Hong Kong University of Science and Technology Shenzhen Research Institute

Xinjiang Technical Institute of Physics and Chemistry, Chinese Academy of Sciences

Shenzhen University

Guangzhou University of Chinese Medicine

Organizer:

The State Key Laboratory of Chinese Medicine and Molecular Pharmacology (Incubation) in Shenzhen, The Hong Kong Polytechnic University Shenzhen Research Institute

Shenzhen Key Laboratory of Novel Natural Health Care Products

Key Laboratory of Plant Resources and Chemistry in Arid Regions of Chinese Academy of Sciences

Central Asian Center of Drug Discovery and Development of Chinese Academy of Sciences

Jinan University

THE ANTIOXIDANT AND ANTIDIABETIC PLANT RESOURCES OF KAZAKHSTAN

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Currently, 15-20% of drugs are produced by Kazakhstan's pharmaceutical companies, so increasing of domestic drugs and suggesting of new methods of isolation of biologically active complexes are a priority and actual task. Therefore, a great theoretical and practical interest play plants of *Chenopodiaceae* family, *Climacoptera* genus, which are widespread in Kazakhstan and some of them are endemic plants.

In this study, we evaluated an antioxidant activity of extracts from *Climacoptera subcrassa,* it was tested against the stable DPPH (2,2-diphenyl-1-picryl-hydrasyl-hydrate) free radical and antidiabetic potential of *Climacoptera obtusifolia* via protein tyrosine phosphatase 1B (PTP1B) and advanced glycation end products (AGE) formation inhibitory assays.

As a result of bioscreening of biologically active complex of flavonoids from *C. subcrassa* showed antioxidant activity. For effective separation of butanol extract of a plant of genus *C. subcrassa* used as sorbent a macroporous AB-8. A quantitative analysis of flavonoid complex by HPLC was done, as a result eight flavonoids were determined. Main components of the antioxidant activity are arbutin, glycosides of quercetin and isorhamnetin. Arbutin was identified for the first time from plants *Climacoptera*.

All tested extracts of *C. obtusifolia* showed significant potent inhibitory activity on PTP1B; but the butanol fraction is the most potent fraction with an IC_{50} value of 1.53 μg/mL). At the same time all extracts were subjected to *in vitro* screening against glycation of bovine serum albumin (BSA). A bioassay-guided fractionation technique was used for identifying the principal active component. Four fractions from *n*-BuOH extract exhibited relatively higher activity against BSA antiglycation (antidiabetic) model (IC_{50} = 0.27 – 0.73

mg/mL), obtained at different polarities. On the basis of qualitative reactions (ammonia vapors, UV-light, anthocyanidinic sample) and chromatographic behavior (PC) substances were referred to polyphenolic compounds. In order to isolate pure compounds from these active fractions were used MCI gel polymeric resin as adsorbent for the separation, Sephadex LH-20 column chromatography and HPLC. Thus, three tamarixetin glycosides have been isolated. Structures of isolated polyphenols established by modern spectral analysis. By using antiglycation (antidiabetic) activity test-guided fractionation, a single bioactive compound was isolated from the *n*-BuOH extract of aerial parts of *Climacoptera obtusifolia* and subsequently identified as tamarixetin 3-O-robinobioside. Tamarixetin glycosides were isolated for the first time from plants of family *Chenopodiaceae*.

Methods of obtaining are protected by the patents of the Republic of Kazakhstan.