

15 Years of *Chemical and Biochemical Engineering Quarterly*: Initiative, Present and Future

KUI 12/2002
Received December 1, 2001
Accepted January 22, 2002

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The initiative to start with publication of a new journal *Chemical and Biochemical Engineering Quarterly* (CABEQ) as a part of European Alpe-Adria initiative for regional co-operation is described. Given are the main goals for the new journal published by Croatian Association of Chemical Engineers, formation of the international editorial board, and experiences gained during 15 years of publishing. Presented are statistical data on published papers, country of origin of authors, and classification of papers into chemical and biochemical engineering fields. The experiences gained during the last two years with publishing on *Internet* and planned activities in future are also presented. A view on validation of journals by ISI impact factor is discussed.

Key words: Publishing, chemical engineering, biochemical engineering, *Internet*, impact factor

Initiative for CABEQ

At the beginning of the 1980's activity of Croatian Society of Chemical Engineers (former Union of Chemists and Technologists of Croatia) was particularly significant within the Section for chemical engineering, headed by Dr. Dinko Sinčić. At that time the Section organised numerous invited lectures given by prominent chemical engineers, such as Prof. J. Prohaczka, Prof. M. Duduković, Prof. G. Baldi, Prof. J. Levec, and many others. The Section also gave the initiative for formation of the Yugoslav Committee For Chemical Engineering. At the same time the European initiative Alpe-Adria for regional co-operation was started and the Section participated in joint organisation with Austrian and Italian associations of regular meetings of chemical engineers under the name of Austrian-Italian-Yugoslav Chemical Engineering Conferences (AIY CEC). The papers from these conferences were published in part by Croatian journal *Kemija u industriji* (KUI) and in proceedings of the conferences. The circulation of the proceeding was limited mostly to participants of the conference, and distribution of KUI was mostly limited to the republics of former Yugoslavia.

In order to increase impact of the events, the idea was born among the Section for chemical engineering in Croatian Society of Chemical Engineers to publish an international edition of KUI journal, which at that time had a tradition of 35 years of continuous publishing. Soon the Editor-in-chief of KUI, Prof. I. Butula, with assistance of several members of Editorial Board of KUI (Prof. E. Bauman, Dr. D. Sinčić, Mr. sc. E. Beer), as well as certain other members of the Section made necessary preparations for starting the new journal. Dr. D. Sinčić proposed the name

for the new journal *Chemical and Biochemical Engineering Quarterly*, abbreviated as CABEQ. The idea was to bring traditional chemical engineering into, at that time, the new emerging field of biochemical engineering. The proposal was endorsed at the AIY CEC meeting held in Portorož, Slovenia, in September 1986. Its aim would be to bring together faculty and students from chemical and biochemical engineering departments and industry in the Alpe-Adria region. In a broader aspect, the journal should fill the gap in communication between engineers and scientists from Central Europe and Mediterranean countries.

15 Years of CABEQ

After the conference in Portorož an editorial board was formed. CABEQ editorial office is established at the address of Croatian Society of Chemical Engineers in Berislavićeva 6, 10 000 Zagreb, Croatia. Prof. E. Bauman from University of Zagreb was elected to the position of a chief editor, and Prof. Anton Moser from University of Graz and Prof. Paolo Alessi from University of Trieste were elected as associate editors. Later, Prof. T. Koloini was adopted as an associate editor from Slovenia. Editorial board was formed from faculty members of chemical engineering departments from universities of Graz, Ljubljana, Maribor, Trieste and Zagreb. For the publisher Prof. I. Butula was elected as the chief co-editor. Scientific Advisory Board of 26 members of the most distinguished chemical engineers and scientists from Europe, USA and Canada was formed. Elected are: W. Bauer (Lausanne, CH), M. Berović (Ljubljana, SLO), C. Biardi (Milano, I), M. Bošnjak (Zagreb, HR), M. Brajović (Skopje, MA), A. Brambilla (Pisa, I), J. Corella (Zaragoza, E), W. D. Deckwer (Braunschweig, D), Z. Fonyo (Budapest, H), G. Hamer (Zürich/Dubendorf, CH), E. Heidenreich (Braunschweig, D), S. J. Jančić (Toronto, CN), V. Karanović (Tuzla, BiH), I. Kikić (Trieste, I), J. Levec (Ljubljana,

SLO), S. Malanowski (Warszawa, PL), A. Mayer (Graz, A), F. E. Moser (Graz, A), I. Nikolov (Sofia, BL), Ž. Olujić (Delft, NL), J. Prochazka (Praha, CZ), L. Rieckert (Karlsruhe, D), H. Salzbrunn (Wien, A), U. von Stocker (Lausanne, CH), Ž. Vrbanović (Zagreb, HR), M. Žumer (Ljubljana, SLO).

After the end of 1998, when Prof. E. Bauman retired from the position of chief editor, Prof. Ž. Kurtanjek from University of Zagreb was elected to his position. At the same time Prof. I. Butula retired from the position of co-editor for the publisher, and to this position was elected Prof. D. Škare from Rudjer Bošković Institute, Zagreb. The editorial office employs business and publishing secretaries on a permanent basis with 50 % time share between *KUI* and *CABEQ* journals. A technical editor, metric and English proof readers, are employed on a part time basis.

Publishing frequency of four issues per year was adopted. The journal accepts contributions of original scientific papers, reviews, preliminary communications, professional papers, conference papers, opinion papers and notes. The Journal has a number of appended sections, such as: Calendar of Events, Book Reviews, News from Industry, and Notes. During a period in 1990's *CABEQ* was publishing official News Letter from European Federation of Chemical Engineering.

The first issue of *CABEQ* appeared in March 1987, and since that date it has been continuously published for 15 years. We are especially proud of the fact that despite the aggression on Croatia, not a single issue was delayed in its publication. The Ministry of Science and Technology of Republic Croatia is continuously providing financial support for publishing expenses.

Soon after the establishment of *CABEQ* Editorial board, Croatian Society of Chemical Engineers, Slovenian Chemical Society as well as the Austrian Association of Bioprocess Technology have decided to accept *CABEQ* as their official journal. The Editorial board meets twice a year at chemical engineering departments in Ljubljana, Graz, Trieste and Zagreb in a rotating order.

CABEQ is referred to in the following tertiary publications (data bases): Chemical Abstracts, Chemical Engineering Abstracts, Chemical Engineering and Biotechnology Abstracts, Chemischer Informationsdienst, SCI-Biotechnology Abstracts, and russian Referativni Žurnal. Offprint of the articles are available through *The Genuine Article®* delivery program of the American Institute for Scientific Information (ISI).

The institute ISI has included *CABEQ* into its publication of Biotechnology Citation Index. For issues published in 1999 ISI impact factor of 0,205 has been recorded, while in the last year 2000 it was increased to value 0,4.

The *CABEQ* journal has a circulation of about 600 copies, most of which are distributed among chemical engineering department libraries, scientific institutes and national libraries around the world. There are relatively few individual subscriptions. The Journal has attracted numerous authors from almost all European countries, as well as from USA, Canada and India. In 15 volumes (years) of *CABEQ* all in all 376 contributions have been published, or average of 6–7 manuscripts per each issue (Fig 1.).

For the 15 years of publishing authors from Italy gave the most contributions to the Journal, 23 % of all papers, follo-

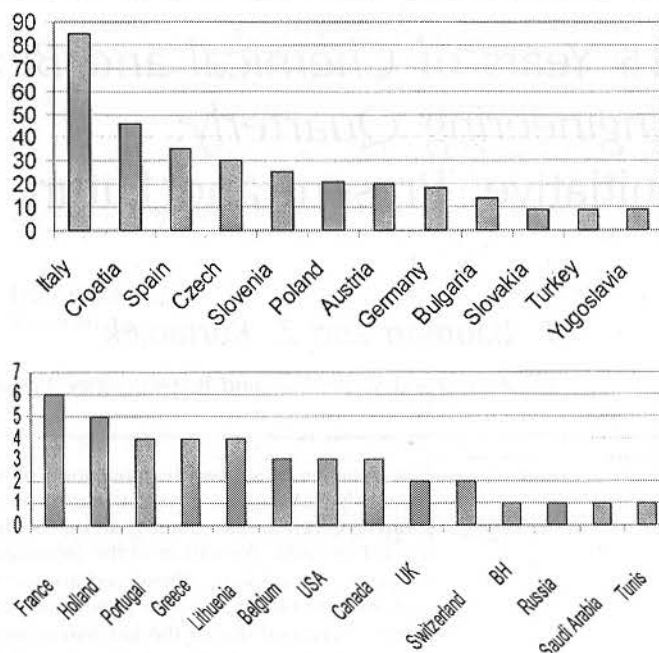


Fig. 1 a-b – Number of contributions from individual countries, which appeared in the first 15 volumes of *CABEQ*
Slika 1 a-b – Broj radova iz pojedinih zemalja koji su objavljene u prvih 15 volumena *CABEQ*-a

wed by Croatia with 14 %. The founder countries Slovenia and Austria gave 7 % and 6 % contributions respectively. Over 60 % of contributions are from Mediterranean countries. In the first period of publishing papers on chemical engineering dominated over biochemical engineering, then for many years the ratio was about equal, but for the last years with increasing number of submitted manuscripts contributions from biochemical engineering field became dominant. It is interesting to note that contributions on biochemical environmental engineering are dominating over papers on biochemical production topics, Fig. 2.

Time period between arrival of a manuscript and actual appearance in the Journal was at the beginning about 6 months, but for the last year with increased number of

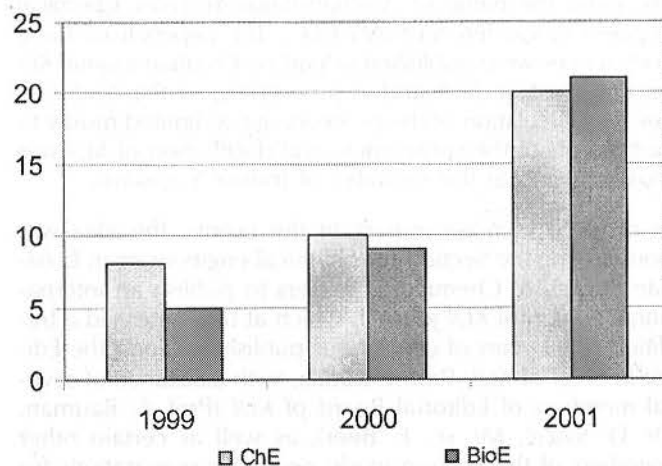


Fig. 2 – Number of submitted manuscripts to *CABEQ* for the last three years divided into the chemical and biochemical engineering fields

Slika 2 – Broj zaprimljenih radova u *CABEQ*-u tijekom zadnje tri godine prema područjima kemijsko inženjerstvo (ChE) i biokemijsko inženjerstvo (BioE)

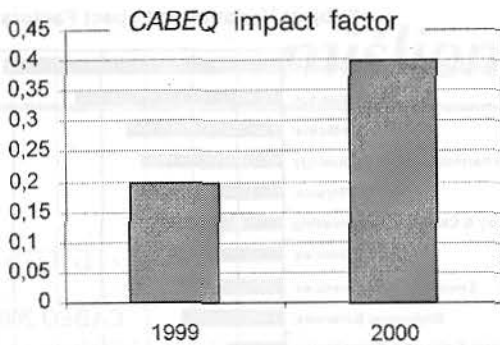


Fig. 3 – ISI impact factors for the last two volumes of CABEQ
Slika 3 – ISI "impact factor"-i CABEQ-a u zadnje dvije godine

submitted manuscripts, has extended on the average of 9 months. Two or three international reviewers review each submitted manuscript. On average, 20 % of submitted manuscripts are rejected for publishing.

For the last two years CABEQ has also been present on *Internet*. The Journal WEB page is available at URL address <http://www.pbf.hr/cabeq>. The page provides essential information for contact with CABEQ Editorial Office, the list of E-mail addresses of Editorial Board Members, URL addresses of founder departments in Austria, Croatia, Italy and Slovenia, instructions to authors, a form for electronic subscription to the Journal, free of charge subscription for abstracts via E-mail, and download of full papers in PDF format. All authors are requested to submit their contributions in electronic format via E-mail, and submission of a paper version of manuscripts is only an option. Submitted manuscripts are together with reviewer's forms E-mailed to reviewers, and unsigned version of a review is requested by E-mail. A signed version of a review together with a paper copy of a manuscript with marked corrections, is requested by post mail to CABEQ office.

During reviewing period authors are in contact by E-mail with Editor in-chief and are informed about paper status. A final version of a paper is also requested in electronic format by E-mail. Before publishing each paper in PDF format it is E-mailed to authors for proof reading. Authors corrections after proof reading are E-mailed back to Editor or faxed to CABEQ's office. Electronic version of each issue is published on *Internet* in PDF format with some time delay after distribution of the paper edition.

CABEQ's future

CABEQ's future is foreseen in view of advances of electronic communications and publishing on *Internet*. Future developments are closely related to *Internet* infrastructure, already available as general information services, and new knowledge services which will be developed specifically for specific fields, such as chemical and biochemical engineering (browsers, property data basis, process design algorithms, numerical software, data mining, genomics data, proteomics data, etc.). From a broad view, CABEQ future impact could be foreseen in the following impact directions:

- 1) bibliometric (ISI *Journal Citation Reports* Impact Factor)
- 2) knowledge impact
- 3) academic (educational) impact
- 4) social and political impact

Bibliometric impact

The ISI *Journal Citation Reports* Impact Factor has moved in recent years from an obscure bibliometric indicator to become one of the most used (and abused) measure of the quality of a journal, its research papers, the researchers who wrote those papers, and even of the institution they work for.^{1,2} From Croatian experience, journal's Impact Factor is a decisive factor in decisions of Ministry of Science and Technology as to finance the journals. However, many scientists are aware of difference between actual quality of a journal in a specific field or a branch of science, and its Impact Factor. It has been proven, by thorough statistical analysis of about 2000 journals in all scientific fields, that the index has a highly relative value, depending mainly on scientific field, but also on many other superficial factors, Fig. 4–7. Statistical error in the Impact Factor is very large, and it has been estimated that within $\pm 25\%$ bounds of the factor for the same scientific field, journal may be considered to have the same bibliometric impact. The use of journal impact factors for evaluating individual scientists is even more dubious, given the statistical and sociological variability in journal impact factors. Nevertheless, in spite of errors in judgement, Impact Factor will continue to be a useful measure of a journal success, and CABEQ's future efforts should be directed to different and focused activities to increase its value.

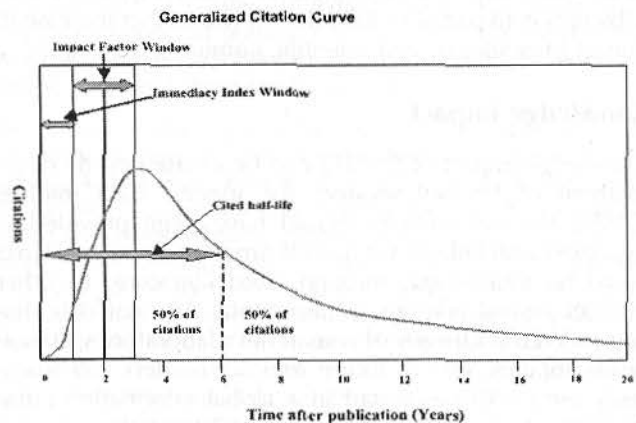


Fig. 4 – Generalised citation curved obtained from statistical data from about 2000 scientific journals^{2*}

Slika 4 – Generalizirana krivulja citiranja dobivena iz podataka za oko 2000 znanstvenih časopisa^{2*}

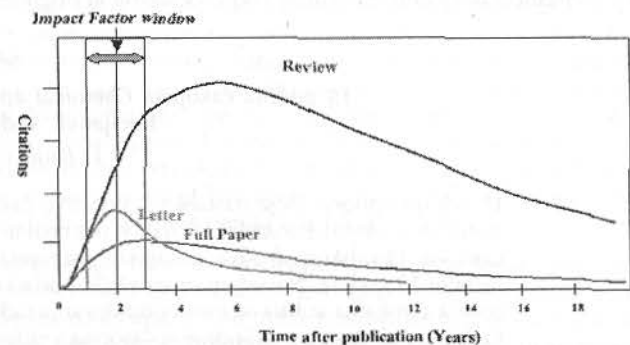


Fig. 5 – Long range distribution of citations depending on type of a paper^{2*}

Slika 5 – Dugoročna raspodjela citiranosti prosječnog rada za-visno od vrste rada^{2*}

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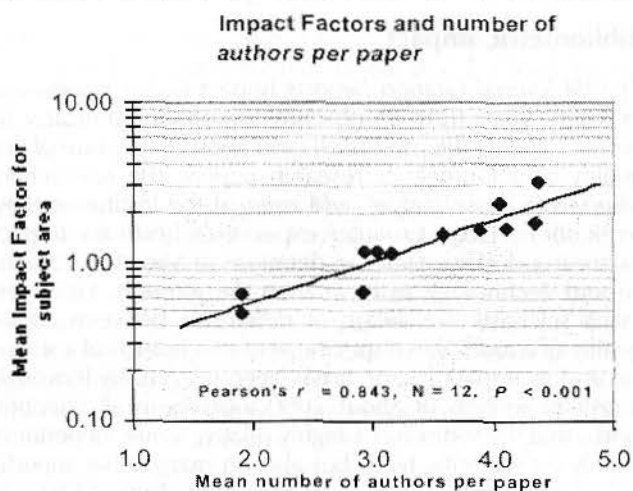


Fig. 6 – Exponential correlation of impact factor and number of co-authors per a paper^{2*}

Slika 6 – Eksponencijalna korelacija "impact factor" u zavisnosti od broja koautora^{2*}

In near future CABEQ Editorial Board should make an effort to increase impact factor by publishing special issues edited by guest editors selected from outstanding scientists. Broader distribution of CABEQ Internet edition by availability of download function from CABEQ WEB server and by E-mail subscription to partial or full editions will further increase its impact in academic and scientific community.

Knowledge impact

Knowledge impact of CABEQ can be envisioned by development of Internet services for specific data mining. CABEQ Internet editions should have been provided in hypertext with links to various information resources. Links could be established, through cited literature, to other Internet journal editions, experimental data could be linked to WEB addresses of researcher's laboratories, to software libraries, etc. In future Internet readers will seamlessly use CABEQ as a part in a global information infrastructure of chemical and biochemical journals.

Academic impact

CABEQ should play a more pronounced role in exchange of information between chemical and biochemical engine-

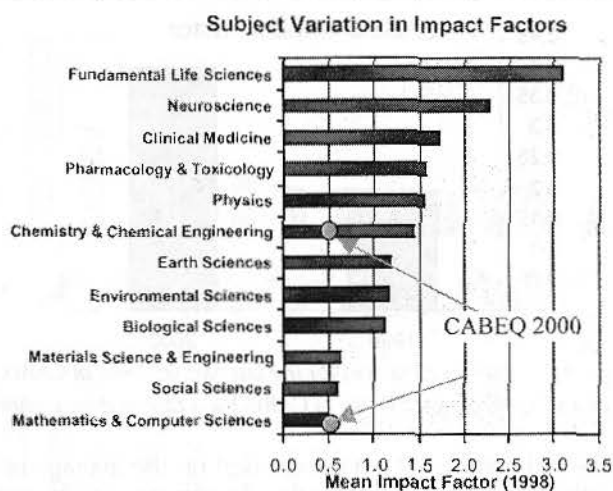


Fig. 7 – Distribution of average impact factors among journals depending on scientific field^{2*}

Slika 7 – Raspodjela srednje vrijednosti "impact factor" časopisa prema pojedinim znanstvenim područjima^{2*}

ering departments in Alpe-Adria region. Information on undergraduate and postgraduate studies should be currently available in CABEQ, reports on scientific projects, information for a students exchange, announcements on open research positions in projects and staff, announcements on scheduled PhD thesis defenses. Especially, CABEQ should improve its educational impact by publishing review papers in specific fields which could be used as supplementary text in undergraduate or postgraduate studies.

Social and political impact

Social and political impact of CABEQ can be established by serving to students and engineers needs for information on student scholarships, available employment positions at universities and industry, and activate student and faculty exchange in Alpe-Adria region, with all the efforts focused on politically integrated Europe.

Literature

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SAŽETAK

15 godina časopisa *Chemical and Biochemical Engineering Quarterly*: Inicijativa, sadašnjost i budućnost

E. Bauman i Ž. Kurtanjek

U radu je opisana ideja nastanka i osnivanje časopisa *Chemical and Biochemical Engineering Quarterly* (CABEQ) u okviru Europske inicijative regionalne suradnje Alpe-Adria. Izloženi su osnovni ciljevi novog časopisa Hrvatskog društva kemijskih inženjera, osnivanje međunarodne redakcije i rad redakcije tijekom 15 godina. Navedeni su statistički podaci o objavljenim radovima, podaci o radovima podijeljeni prema zemljama autora te trend objavljivanja radova za područja kemijskog i biokemijskog inženjerstva. Opisana su iskustva s izdavanjem časopisa i radom redakcije na Internetu tijekom zadnjih dviju godina, te nove mogućnosti elektroničkog izdanja koje se planiraju u budućem radu. Dan je i osvrt na vjerodostojnost ocjene časopisa primjenom ISI "impact factor"-a.

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Prispjelo 1. prosinca 2001.
Prihvaćeno 22. siječnja 2002.