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PEER-REVIEW PROCESS IN JOURNALS DEALING WITH CHEMISTRY AND RELATED SUBJECTS PUBLISHED IN SERBIA

Article Highlights

- Low response rate to invitations to review
- Poor quality of the reports
- Editors often review papers themselves

Abstract

A survey was conducted among editors of journals publishing in the field of chemistry, chemical technology and related topics in Serbia, aiming to collect information on their experience, problems and difficulties during peer-review process. Editors from 22 journals out of 27 that regularly published during 2015 replied. General data on journals were collected from responses obtained from editors-in-chief, whereas all editors (including sub-editors and section editors) participated in a questionnaire concerning peer-review procedure. Additionally, they were asked to evaluate quality of reports and attitude of reviewers, discuss present situation and suggest measures to improve peer-review process. The greatest problems encountered by editors in peer-review process can be summarized as follows: low rate of acceptance to review, low quality of reports, sometimes due to the reviewer's bias or their inability to properly understand the review process. A method used to search for reviewers does not substantially influence the quality of reports. Editors agree that introduction of On-Line processes and creation of precise instructions for reviewers, education of potential reviewers, as well as social, public and professional recognition and appreciation of reviewers' work, are the most important measures to improve the quality of the peer-review process and, consecutively, the quality of published articles and journals.

Keywords: scientific publishing, search for reviewers, quality of peer-review reports, on-line processing of papers.

The quality of a scientific journal is a very important criterion in the evaluation of the achievements of individuals, teams and institutions involved in scientific research. Based on the quality of a journal, individuals progress in their scientific career and become recognized as experts in specific research field, teams obtain projects and funding (including employment), while institutions are ranked at national and international levels. Evaluation of a journal is,

therefore, a subject of great interest to the scientific community. In order to rank scientific journals, primarily in a quantitative manner, several methods for their evaluation can be employed [1-3]. The best known method assumes estimation of journal quality by Impact Factor - IF (Science Citation Index Expanded™, available at Web of Science™) [4]. Large publishers of scientific journals develop their own methods for measuring quality and impact of published papers. For example, a world-wide known publisher Elsevier employs a whole range of parameters to evaluate journals, such as Source Normalized Impact per Paper (SNIP) or SCImago Journal Rank (SJR) [5]. In Serbia, the Centre for Evaluation in Education and Science (Centar za evaluaciju u obrazo-

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vanju i nauci) uses a national Science Citation Index - SCIndex [6]. A discussion on positive and negative aspects of evaluation of journal quality *via* IF has been going on for a long time, with special emphasis on application of IF to the evaluation of the scientific quality of a single paper or an author. It is obvious that the IF of a journal is not an instrument to measure the scientific quality of a certain paper. Occasionally, some very high quality papers, which become later among the most cited in the field, are initially rejected in journals with high IFs, and are then published in journals with lower IFs [7]. Approximately ten years ago, Jorge E. Hirsch established a parameter to assess the quality of an author, named after him - the Hirsch index, or simply h-index [8]. The h-index measures the impact of an author by the number of his/her citations. Of course, this method of evaluation has its disadvantages as well: authors who publish papers for a long time, expectedly, have higher h-index than early-stage researchers.

Regardless of the evaluation method used to assess the quality of journals, papers or researchers, it is essential that the published paper, besides being highly cited, reveals new, important and useful research results, *i.e.*, represents "excellence in science". In order to achieve publication of high quality articles, one of the most effective mechanisms is competent peer-review process [9]. Reviewers are expected to: identify innovations in research, discourage repetition of results that have been already published, identify incorrect data, detect plagiarism, suggest corrections which improve overall quality of a paper, point to important references omitted, recognize whether a paper is prepared and written technically correctly, check whether all conclusions are supported by experimental (instrumental) data, determine whether language used to write a paper is correct, and, finally, to do all this relatively quickly (within a few weeks) [10-11]. Since the mentioned tasks are very demanding, great responsibility relies on reviewers, as well as on editors and members of editorial boards who invite reviewers. It has been shown that these requirements are not always satisfied [12]. Scientific journals apply different editorial policies and procedures for peer-review in order to obtain competent reports, by the requested deadline. Regardless of the type of peer-review process (four basic are known so far [13]: single blind - reviewer knows identity of an author; double blind - identities of authors and reviewers are mutually unknown, open peer review - all identities are known, and post publication review - unlimited post publication review), it is important to insist on

certain general recommendations in scientific publishing. These include:

- a. clearly defined scope of a journal, so that invited reviewers may recognize themselves as appropriate to contribute to specific scientific field,
- b. transparency in article processing and existence of journal website with accessible publishing policy and rules,
- c. invitation of international experts to participate as reviewers or members of editorial board,
- d. sufficient time for reviewers to do peer-review,
- e. clear instructions for reviewers on technical and essential requirements for peer-review,
- f. avoidance of conflicts of interest in peer-review process and
- g. application of an On-Line system for submission and processing of papers and reports.

It is well known that authors are often not satisfied with the efficiency of the peer-review process, *i.e.*, with the speed and quality of the received reports. They find the process to last too long, and receive reviews that are occasionally incompetent, biased or unprofessionally written. One must admit that this is sometimes true. Besides subjective impression, however, authors are usually not aware of the difficulties encountered by editors while trying to provide a fast and high-quality peer-review process.

In order to improve the peer-review process in scientific publishing in Serbian journals dealing with chemistry, chemical technology and related disciplines, a research study was conducted by using a questionnaire for journal editors. The aim of the survey was to examine problems encountered by editors during the peer-review process, covering topics such as searching for competent reviewers, obtaining high-quality reports and receiving them on time. In addition, editors were asked to offer possible solutions for identified/noticed problems, in order to improve the process and increase quality of reports. The survey was performed as part of activities within COST action TD1306: New frontiers of peer review (PEERE) [14] and it is continuation of a similar survey previously conducted in just one journal in 2014/2015 [15].

EXPERIMENTAL PART

Selection criteria for journals included in the survey were as follows: to publish papers in the field of chemistry, chemical technology and related disciplines, to be regularly issued and categorized according to propositions determined by the Ministry responsible for science in Serbia (at the moment

Ministry of Education, Science and Technological Development of the Republic of Serbia - MESTD). According to available data (obtained from the Serbian Library Consortium, KoBSON and journal websites), 28 such journals were found. The list of journals is shown in Table 1.

The questions in the survey were divided into two sections. The first section was related to general information on journals and answers were obtained only by editors-in-chief. The second part of the questionnaire interviewed all journal editors (subeditors, associate editors, section editors) and was related to the peer-review process. The survey was created as an On-Line form. Invitation to participate in the survey was sent to addresses of 71 editors from 28 journals in mid-October 2015. The survey was completed in mid-December 2015, after sending reminder twice to editors not responding. There was no answer from 6 journals, one of which published the latest issue in 2013 (later check), and it was excluded from the study. General data for these five journals were found

at journal sites, since their editors-in-chief did not respond. Thus, responses were received from 50 editors (71.4 % of total number invited) from 22 journals (81.5 % of the surveyed).

RESULTS AND DISCUSSION

General information on journals

General information on journals obtained from editors-in-chief is shown in Table 2. As mentioned before, general data for five journals were collected indirectly, from journal websites. Since these data were not confirmed by editors, they cannot be taken with full confidence. All uncertainties are indicated in Table 2 by question marks (?).

Eighteen journals out of 27 included in the survey (66.7%) have only editor-in-chief. The majority of journals (22 or 81.5%) enable open access to their content. Only 4 journals (14.8%) have an On-Line system for manuscript submission and processing. The same number of journals partially implements an

Table 1. The list of categorized journals in the field of chemistry, chemical technology and related disciplines published in Serbia

Journal Title	Abbreviation
Acta Periodica Technologica	<i>Acta Period. Technol.</i>
Arhiv za farmaciju	-
Bakar	-
Chemical Industry and Chemical Engineering Quarterly	<i>CI&CEQ</i>
Facta Universitatis - series: Physics, Chemistry and Technology	<i>FU Phys. Chem. Tech.</i>
Hemijska industrija	<i>Hem. Ind.</i>
Hemijski pregled	-
International Journal of Electrochemical Science	<i>Int. J. Electrochem. Sci.</i>
Journal of Medical Biochemistry	<i>J. Med. Biochem.</i>
Journal of Mining and Metallurgy, Section B: Metallurgy	<i>J. Min. Met. B</i>
Journal of the Serbian Chemical Society	<i>J. Serb. Chem. Soc.</i>
Kragujevac Journal of Science	<i>Kragujevac J. Sci.</i>
Livarstvo	-
MATCH Communications in Mathematical and in Computer Chemistry	<i>MATCH</i>
Metallurgical & Materials Engineering (ex. Metalurgija)	<i>Metallur. Mat. Eng.</i>
Nuclear Technology and Radiation Protection	<i>Nucl. Technol. Rad. Prot.</i>
Processing and Application of Ceramics	<i>Proc. Appl. Ceramics</i>
Reciklaža i održivi razvoj	-
Savremene tehnologije (Advanced Technologies)	<i>Adv. Techn.</i>
Science of Sintering	<i>Sci. Sint.</i>
Scientific Technical Review	<i>Sci. Tech. Rev.</i>
Svet polimera	-
Tehnika	-
Thermal Science	<i>Therm. Sci.</i>
Voda i sanitarna tehnika	-
Vojnotehnički glasnik	-
Zaštita materijala	-
Zbornik Matice srpske za prirodne nauke	<i>Matica srpska J. Nat. Sci.</i>

On-Line system (usually for receiving papers) and the rest of the procedure is conducted via e-mail. Most of the journals perform the entire editorial process solely

by e-mail. Judging from the website data, one journal still receives manuscripts only by regular mail.

Table 2. General information about journals; A - responsible person, Editor-in-chief +: there are subeditors; B - number of subeditors; C - members of editorial board; D - financing, MESTD-financed by Ministry of Education, Science and Technological Development of the Republic of Serbia; MESTD+: partially financed by MESTD; APC: article processing charge; E - open access; F - processing of papers, OL: On-Line; G - instructions for reviewers; H - financial participation by authors; I - language, Ser: Serbian, Eng: English; J - referenced in WoS; K - category, according to regulations issued by MESTD; L - number of issues per year; M - number of papers per year. Data collected from journal websites and not confirmed by editors-in chief are marked as “?”

Journal	A	B	C	D	E	F	G	H	I	J	IF 2014	K	L	M
<i>Acta Period. Technol.</i>	Editor-in-chief		13	MESTD	■	E-mail			Eng			M24	1	25
<i>Arhiv za farmaciju</i>	Editor-in-chief		21	Independent	■	E-mail	■		Ser-Eng			M52	6	25
<i>CI&CEQ</i>	Editor-in-chief		30	MESTD+; APC	■	E-mail/OL		■	Eng	■	0.892	M23	4	60
<i>FU Phys. Chem. Tech.</i>	Editor-in-chief +	1	15	MESTD +	■	OL	■		Eng			M52	2	6
<i>Hem. Ind.</i>	Editor-in-chief +	7	17	MESTD+; APC	■	E-mail/OL	■	■	Ser-Eng	■	0.364	M23	6	75
<i>Hemijski pregled</i>	Editor-in-chief +		8	MESTD+	■	E-mail			Ser			M53	6	20
<i>Int. J. Electrochem. Sci.</i>	Editor-in-chief		39	A	■	E-mail	■	■	Eng	■	1.500	M23	12	750
<i>J. Med. Biochem.</i>	Editor-in-chief		36	MESTD+	■	E-mail	■		Eng	■	1.045	M23	4	45
<i>J. Min. Met. B</i>	Editor-in-chief	2	37	MESTD	■	OL	■		Eng	■	0.832	M22	2	15
<i>J. Serb. Chem. Soc.</i>	Editor-in-chief +	15	58	MESTD+	■	OL	■		Eng	■	0.871	M23	12	130
<i>Kragujevac J. Sci.</i>	Editor-in-chief		15	MESTD		E-mail	■		Eng	■		M23	1	25
<i>MATCH</i>	Editor-in-chief		25	MESTD+		E-mail	■		Eng	■	1.466	M21	6	100
<i>Matica srpska J. Nat. Sci.</i>	Editor-in-chief		18	MESTD	■	E-mail			Eng			M51	2	22
<i>Nucl. Technol. Rad. Prot.</i>	Editor-in-chief		8	MESTD+	■	E-mail	■		Eng	■	0.560	M23	4	55
<i>Proc. Appl. Ceramics</i>	Editor-in-chief		20	MESTD+	■	E-mail/OL	■		Eng			M24	4	30
<i>Reciklaža i održivi razvoj</i>	Editor-in-chief +		12	Sponsor	■	E-mail	■		Ser-Eng			M52	1	5
<i>Adv. Techn.</i>	Editor-in-chief		22	MESTD	■	E-mail	■		Eng			M52	2	25
<i>Tehnika</i>	Editor-in-chief +		10	MESTD+		E-mail	■		Ser-Eng			M52	6	14
<i>Therm. Sci.</i>	Editor-in-chief		13	MESTD+	■	E-mail	■	■	Eng	■	1.222	M21	6	210
<i>Voda i sanitarna tehnika</i>	Editor-in-chief		6	MESTD+		E-mail/OL	■		Ser-Eng			M51	6	30
<i>Vojnotehnički glasnik</i>	Editor-in-chief	4	32	MESTD	■	OL	■		Ser-Eng			M51	4	40
<i>Zaštita materijala</i>	Editor-in-chief		27	MESTD+	■	E-mail	■		Ser-Eng			M24	4	65

Table 2. Continued

Journal	A	B	C	D	E	F	G	H	I	J	IF 2014	K	L	M
<i>Sci. Sint.</i>	Editor-in-chief +	28 (?)	31	MESTD+ ?	■	E-mail	?		Eng	■	0.575	M23	3	36
<i>Bakar</i>	Editor-in-chief		19	MESTD+ ?	■	E-mail	?		Ser ?			M52	2	20
<i>Metallur. Mat. Eng.</i>	Editor-in-chief	11	17	MESTD+	■	E-mail			Eng			M51	4	28
<i>Sci. Tech. Rev.</i>	Editor-in-chief +		20	MESTD+ ?	■	Mail ?	?		Eng			M52	4	30
<i>Svet polimera</i>	Editor-in-chief?		12	Subscription ?		E-mail?	?		Ser			M52	4	30

The majority of journals publish papers in English - 24 (88.8%), from which 17 (63.0%) only in English and 7 (25.9%) both in Serbian and English. Only 3 journals publish articles exclusively in Serbian. Out of 11 (40.7%) journals referenced in the Web of Science™ (WoS), there is only one without an IF. It is important to emphasize that 24 journals originating from Serbia are referenced in WoS and 11 of them (45.8%) are in the field of chemistry, chemical technology and related disciplines. The analysis of articles and their citations revealed that papers in the field of chemistry take important place in scientific production from Serbia. Furthermore, the quality of these studies is comparable to the quality of those performed in more developed countries of South Eastern Europe [16].

All journals included in this study have editorial board, composed of 6 to 28 members. In 8 journals (29.6%), there are regional or section editors, responsible for certain geographical region or specific scientific area.

The number of issues per year (in one journal volume) varies from 1 to 12, while journals are most often published quarterly (9 or 33.3%) or bimonthly (7 or 25.9%). The average number of published papers per year ranges from 5 to 750 and the total number of published papers in these 27 journals is almost 1750 annually.

Most journals (23 or 85.2%) are partly (17 or 63.0%) or completely (6 or 22.2%) funded by MESTD, 2 journals (7.4%) are self-funded, and 1 (3.7%) is financed by sponsors. Data on financing was not found for one journal. Only three of the Journals (11.1%) have the Article Processing Charge (APC).

Two-thirds of the journals (18) have defined instructions for reviewers.

The peer-review process

Data regarding peer-review process in investigated journals were collected from editors' responses to specific questions. In certain journals, peer-

review process is conducted by several editors (editor-in-chief, section, regional) individually. In such cases, each answer received was managed independently. In other words, answers were not correlated to journals where editors perform their roles. Results of the analysis of collected answers to each question are shown in following paragraphs.

What is the usual way of searching for reviewers?

Editors were offered several answers to this question and they could also add a specific response ("other"). It was possible to choose more than one answer. Thus, 50 editors gave 120 responses overall. Figure 1 shows the distribution of answers, which are presented both as numbers and percentages of the total number.

As it can be seen, the majority of editors (78.0% of those who responded to the survey) search for reviewers by using scientific databases such SCOPUS, WoS, and Google Scholar. Half of editors invite known colleagues as potential reviewers, while somewhat fewer (44.0%) address colleagues who have previously reviewed papers for their journal. A quarter of editors often review manuscripts by themselves.

Although common practice in journals is to ask authors to suggest potential reviewers (which can be concluded from available instructions for authors), only two editors confirmed that they take into consideration mentioned proposals. This may indicate that proposals are often incorrect suggestions, such as recommendation of a coauthor in previous articles as a reviewer and/or a colleague from the author's institution. We have expected that editors would invite authors cited in the submitted paper as reviewers, but only two editors stated (under "other") that they employ this strategy. Three editors stated that their journal has a panel of reviewers, which may be a solution for having competent experts, who will (probably) send their reports in due time. For establishment and update of reviewer database, however,

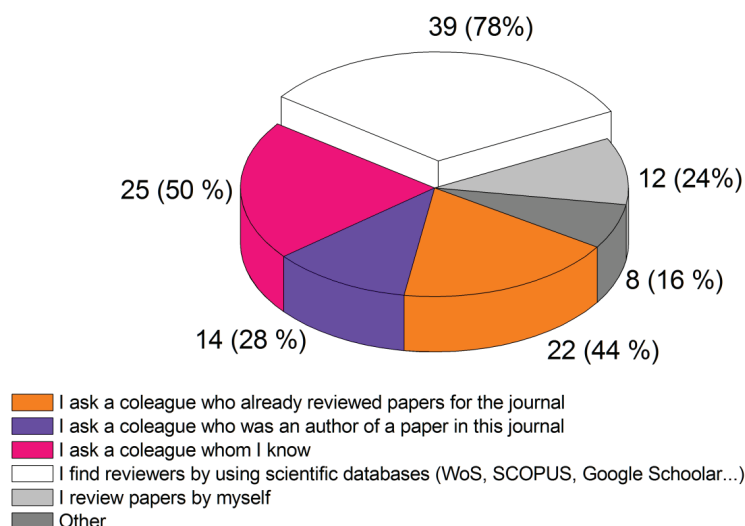


Figure 1. The way in which editors search for reviewers.

additional effort and time are needed. Two out of three journals with such database conduct peer-review process completely On-Line, enabling automatic creation and maintenance of a database with all registered reviewers.

Finally, beside the mentioned answers, the following replies were also given as "other": "Reviewers are proposed by editorial board based on research areas/topics", "I ask recognized experts in specific scientific field and "I ask colleagues from the specific area of research to propose foreign reviewers".

How many reviewers do you invite in the first round? Do you ask for confirmation that he/she will do a review? Do you remind reviewer to send report, if there is no response in due time?

The majority of editors (54.0%) invite only one or two reviewers in the first round. 28.0% of them send invitations to three addresses, one (2.0%) to four addresses and 16.0% to more than four addresses. It is evident that the strategy to obtain reports varies a lot among editors. It is also evident that a certain of editors is satisfied with only one review, although this is not recommended. Most editors (86.0%) ask reviewers to confirm that they will review papers and remind them (94.0%) if the report is not received on time.

For how many papers (in % per year) do you need to conduct second round of reviewers' search? According to your estimation, what is the portion (%) of unresponded invitations?

Graphical distribution of answers to these two questions is given in Figure 2.

Ten editors (20.0%) have to conduct a second round of invitations for more than 40.0% of papers

(Figure 2A), while 6 editors (12.0%) claimed to have more than 40.0% of unanswered invitations (Figure 2B). Majority of editors are successful in obtaining responses (either acceptance or declination to review): 19 editors (38.0%) stated that they do not get an answer for less than 10.0% of invitations, while 30 of them (60.0%) do not get an answer for less than 20.0% of invitations. These results suggest that certain number of editors probably have better approach in peer-review invitation. However, in order to conclude this, it would be necessary to correlate specific responses to specific editors. Currently, such analysis was not performed. The results obtained also indicate that for a relatively large number of papers, a second round of invitations is necessary. This undoubtedly slows down the entire peer-review process, imposes additional load on editors and provokes authors' complaint.

According to your estimation, what is the portion (%) of inadequate peer-review reports (unprofessional or ethically incorrect comments)?

The number of inadequate reports, which include also unethical comments, is not large. Only one editor (2.0%) claimed to receive more than 15.0% of them, while 11 editors (22.0%) stated to have 11-15.0% of such reviews. On the other hand, more than half of the surveyed editors (58.0%) noted to receive less than 5.0% of improper reports and approximately one third of them (36.0%) claimed to have less than 2.0% of unprofessional reviews (Figure 3A). When number of inadequate reports was correlated with editorial strategy to search for reviewers, it became evident that the smallest number of inadequate reviews was obtained when editors reviewed manuscripts often by themselves (Figure 3B). In fact,

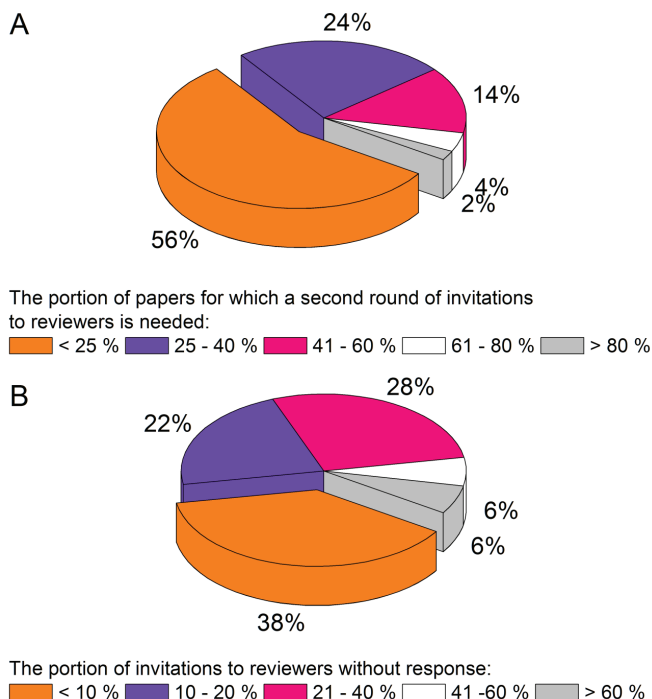


Figure 2. Distribution of answers to questions: A - For how many papers (in % per year) you need to conduct a second round of searching for reviewers? and B - According to your estimation, what is the portion (%) you never get an answer to?

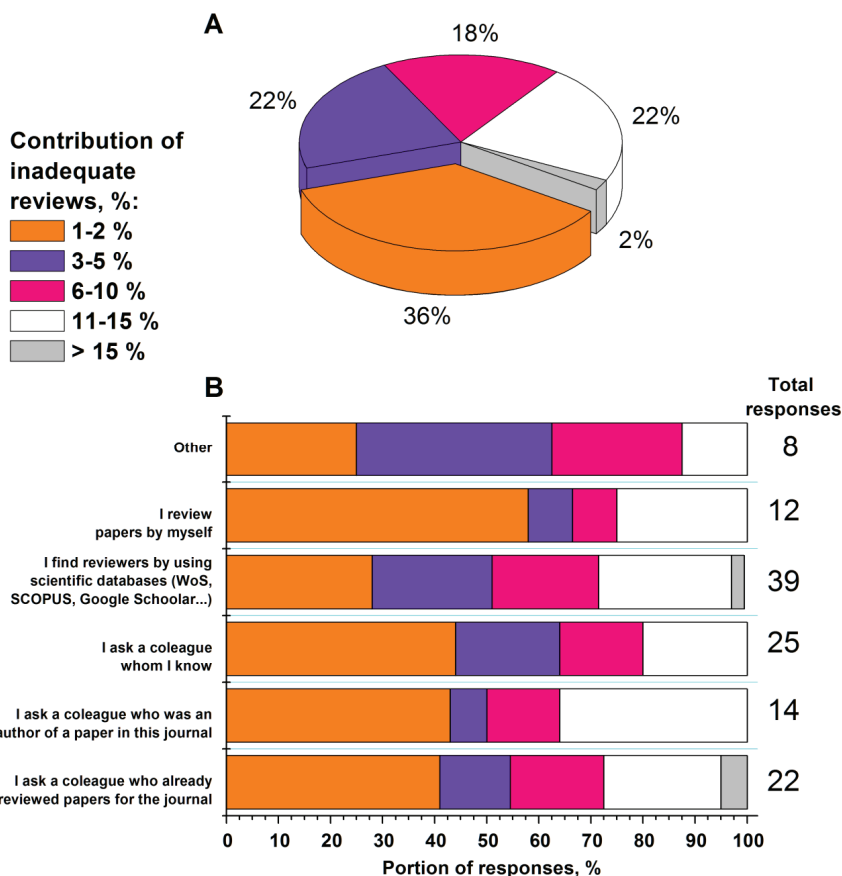


Figure 3. A - Distribution of answers to the question: According to your estimation, what is the portion (%) of inadequate peer-review reports (unprofessional or containing incorrect comments)? and B - Distribution of answers to the same question depending on a way used to search for reviewers.

almost 70.0% of those editors receive less than 5.0% of unprofessional reviews and more than 50.0% of them less than 2.0%. On the other hand, 50.0% of editors who rely on scientific databases as sources of reviewers, as well as those who invite authors who previously published in their journals, receive more than 5.0% of inadequate reviews. Even more, 35.0% of editors who invite previous authors to be reviewers obtain more than 10.0% of inadequate reports.

It should be noted that number of answers in groups formed according to the mode of search for reviewers was different (8 to 39). Furthermore, one editor could choose more than one answer, so these results should be taken with caution. It is obvious that the most reliable way for editors to receive fewer inadequate reports is to review a number of papers by him/her (as expected). Also, invitation of a previous author to review does not necessarily provide a competent report. However, to conclude firmly on this last statement, further investigations are needed. It could be only speculated that authors invited to review feel obliged to respond to invitation, even if they are not competent enough for the task.

How do you grade quality of review reports (competence, clarity, usefulness to improve quality of manuscripts)?

Figure 4A clearly shows that none of the editors receive predominantly bad reviews. Only 7 of them

(14.0%) estimate that they get equal number of good and bad reports. Number of editors who judge that they obtain mostly good (22 or 44.0%) or predominantly good (21 or 42.0%) reviews is almost equal, in total 86.0%. If these data are correlated with data on number of inadequate reviews (Figure 4B), the following result emerges: editors who estimate to obtain more inadequate reviews also estimate to receive more bad quality reviews, and *vice versa*. These findings suggest that, perhaps, editors can be grouped according to their personal criteria. Some editors are generally satisfied with the quality of reviews and they do not notice inadequate remarks in reports. Other editors are, possibly, much more critical when assessing quality of received reviews and ethical parameters. Again, further investigation is needed to establish firm conclusions.

On average, when do you receive reports?

The reviewer's failure to satisfy a deadline point to send a report is often major problem for editors, but also for authors who wait for evaluation of their papers. Majority of editors involved in this survey (64.0%), however, stated that they receive reviews usually on time (56.0%) or even ahead of time (8.0%) (Figure 5). If we add to these editors those who usually get reports up to 10 days after deadline, without (16.0%) or after sending reminder (6.0%), it could be concluded that most reviewers are responsible

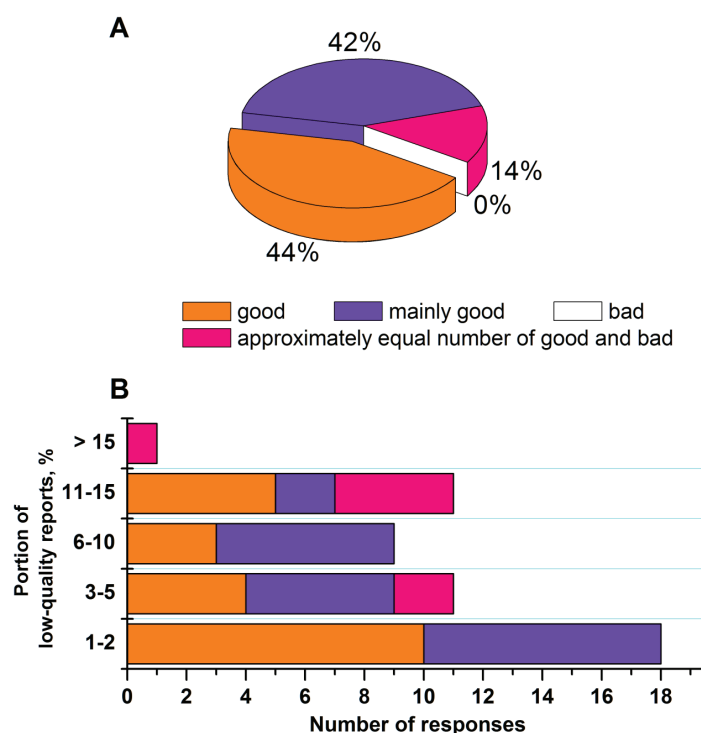


Figure 4. A - Assessment of the quality of peer-review reports; B - relation between quality (competence) and adequacy of peer-review reports.

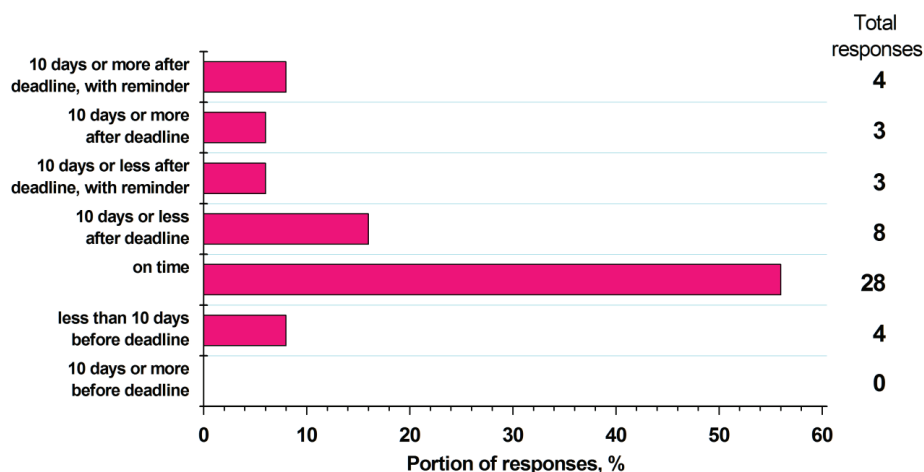


Figure 5. Distribution of answers to the question: *On average, when do you get peer-review reports?*

and aware of the importance to submit reports on time. Only 14.0% of editors claimed to receive reports, on average, more than 10 days after deadline.

One should have in mind that this question and answers defined editors' impression only on reviewers who submitted reports, excluding potential reviewers who accepted to review, but actually never did.

What else in the process of peer-review would you draw attention to? What would you suggest to improve peer-review process and quality of reports?

Editors who responded to the survey had an opportunity to identify their specific problems encountered in the peer-review process ("Comments") and propose measures to improve the process ("Suggest-

ions"). Submitted comments and suggestions were systematically grouped and are given in Table 3. Out of 50 participants, 32 made remarks and 26 gave suggestions. Some editors had several remarks and suggestions.

This survey with large number of editors confirmed previous results obtained on editors in just one journal. More than one-fourth of surveyed editors stated that they have problem in finding reviewers and that they get too many poor-quality reports. Four editors stated that they recognized reviewer's bias. This issue certainly deserves more attention. Personal acquaintance of authors and reviewers can result in unreasonably positive or negative reports. Also, some studies have shown that papers from

Table 3. *Comments and suggestions of editors on peer-review process*

Comments	Frequency	Suggestions	Frequency
Poor response of reviewers to invitation to review	13/32	Appreciation of reviewers' work (acknowledgment, certificate, licence)	11/26
Poor quality of reports	10/32	Detailed instruction for reviewers, On-Line reviewers' form, software for detecting plagiarism	9/26
Reviewers' bias	4/32	Omitting (or limiting) author's suggestion for reviewers	4/26
Technical comments	3/32	Formation of permanent panel of reviewers	4/26
Reviewers unfamiliar with peer-review process and/or On-Line system	3/32	Satisfaction with existing status, no need for any change	4/26
Editor claims to have insufficient experience to give comments	2/31	Greater engagement of editors-in-chief before sending papers to review	3/26
Plagiarism	1/32	Search for reviewers among authors	2/26
Satisfaction with existing system	1/32	Double-blind review	2/26
		Limitation to 30 days for reviewer's report submission	1/26
		Limitation of number of reviews which can be done by one reviewer in the same journal	1/26
		Enable authors to evaluate quality of received reviewer's reports	1/26
		Training of reviewers, greater engagement of young researchers	1/26
		Notification of personal contribution of each author in the manuscript	1/26

authors originating from developing countries or scientifically uninfluential institutions more often (unjustifiably) get less favorable reports, whereas manuscripts from prestigious institutions, or authored by well-known scientists, are sometimes (unjustifiably) accepted in the submitted form [17]. In the case of "ethical bias", when a report is intentionally and maliciously negative regardless of the paper quality, it may be suggested to create a so called "black list" and put these reviewers on it. In general, high-quality papers and professional conduct of editors are prerequisites for good reputation of a journal and positive attitude of invited reviewers.

Some suggestions for improving peer-review process refer to technical aspects of a process, enabling easier and faster peer-review (Table 3). Although majority of editors confirmed that their journal has instructions for reviewers, not all of them are satisfied with its content. According to some editors, implementation of On-Line system should expedite and improve the peer-review process. However, according to the experiences of some other editors, those who already employ it, there are reviewers who have problems in familiarising with On-Line systems.

Most editors agreed that more should be done to recognize the importance of peer-review (Table 3). This issue attracts considerable attention worldwide and large publishers have created their own databases of reviewers, sometimes even supported by certificates to reviewers [18] or a reward [19-20]. Several months ago, a program and a database were created by the company Publons, aiming to collect in one place information on all reviews individual researcher/reviewer has done during his/her career [21]. Creators of Publons verify themselves material obtained from reviewers directly from publishers.

In addition to these two major groups of suggestions, some editors named others that reflect their personal experiences, as listed in Table 3. We believe that each of them deserves attention and additional investigation, but at the moment we do not have enough data to discuss them further. One way to collect data on peer-review process in journals is to interview authors of manuscripts on that topic [22]. Awareness of a reviewer that he/she (or a report) will be judged by an author and that this opinion will be available to editor, will certainly affect reviewer's responsibility and quality of peer-review. One such research study is in preparation at international level within the mentioned COST action TD1306: New frontiers of peer review [14].

CONCLUSION

The major problems of journal editors in peer-review process are low response rate to invitations to review, reports of poor quality, sometimes accompanied by bias and lack of experience and/or understanding of the peer-review process by reviewers. The strategy for how to search for reviewers has no substantial effect on the quality of reports. A significant number of editors often review papers by themselves. Invitation of a reviewer suggested by an author, at least in the surveyed journals, relatively frequently results in inadequate reports.

Implementation of an On-Line managing system, creation of detailed guidelines for reviewers, training of potential reviewers, as well as social, public and professional recognition and valorization of the work performed by reviewers, editors see as the most important factors to improve the quality of the entire process as well as the quality of published papers and journals.

Data collected by our team are valuable for further analysis and establishment of correlations between specific parameters and particular journals. In this paper we have presented only basic data and conclusions, considering all surveyed journals (editors) as one group.

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NAUČNI RAD

PROCES RECENZIRANJA RADOVA U ČASOPISIMA IZ HEMIJE I SRODNIH OBLASTI KOJI SE IZDAJU U SRBIJI

Kroz anketu sprovedenu među urednicima naučnih časopisa iz oblasti hemije, hemijske tehnologije i srodnih oblasti, koji se publikuju u Srbiji, prikupljene su informacije o iskustvima, problemima i teškoćama sa kojima se urednici sreću tokom procesa recenziranja radova. Od 27 časopisa koji su u Srbiji izlazili u toku 2015. godine, na anketu su odgovorili urednici iz 22 časopisa. Na osnovu odgovora glavnih i odgovornih urednika, prikupljeni su osnovni podaci o časopisima, dok su svi urednici koji učestvuju u procesu recenziranja (područni, sekcijski) odgovarali na pitanja koja su se odnosila na način sprovođenja procesa recenziranja. Pored toga, oni su ocenjivali kvalitet recenzija i odgovornost recenzenata, i davali primedbe na trenutno stanje i sugestije za poboljšanje procesa recenziranja. Pokazano je da su najveći problemi sa kojima se urednici sreću u procesu recenziranja slab odziv recenzenata, recenzije lošeg kvaliteta, nekad uz predrasude recenzenata i nesnalaženje i/ili nerazumevanje procesa recenziranja. Pored toga, način traženja i pozivanja recenzenata nema suštinskog uticaja na kvalitet recenzija. Značajan broj urednika često sam recenzira radove. Pozivanje recenzenata na predlog autora, barem u anketiranim časopisima, relativno često je uzrok neadekvatnih recenzija. Uvođenje On-Line procesa i kreiranje dobrih uputstava za recenzente, edukacija potencijalnih recenzenata, kao i društveno, javno i profesionalno prepoznavanje i vrednovanje rada recenzenata, urednici vide kao najbitnije faktore koji mogu unaprediti kvalitet celog procesa, pa time i kvalitet publikovanih radova i časopisa.

Ključne reči: naučno izdavaštvo, traženje recenzenata, kvalitet recenzija, On-Line procesiranja radova.