

# Some remarks on Balaban and sum-Balaban index\*

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Received 3 February 2018, accepted 14 March 2019, published online 4 May 2020

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## Abstract

In the paper we study maximal values of Balaban and sum-Balaban index, and correct some results appearing in the literature which are only partially correct. Henceforth, we were able to solve a conjecture of M. Aouchiche, G. Caporossi and P. Hansen regarding the comparison of Balaban and Randić index. In addition, we showed that for every  $k$  and large enough  $n$ , the first  $k$  graphs of order  $n$  with the largest value of Balaban index are trees. We conclude the paper with a result about the accumulation points of sum-Balaban index.

*Keywords: Topological index, Balaban index, sum-Balaban index, Randić index.*

*Math. Subj. Class.: 05C12, 05C90*

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\*The authors acknowledge partial support by Slovak research grants VEGA 1/0142/17, VEGA 1/0238/19, APVV-15-0220 and APVV-17-0428, Slovenian research agency ARRS, program no. P1-0383, and National Scholarship Programme of the Slovak Republic SAIA.

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# Nekaj pripomb k Balabanovemu in vsotno-Balabanovemu indeksu\*

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Prejeto 3. februarja 2018, sprejeto 14. marca 2019, objavljeno na spletu 4. maja 2020

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## Povzetek

V članku raziskujemo maksimalne vrednosti Balabanovega in vsotno-Balabanovega indeksa in popravimo nekatere rezultate, ki se pojavljajo v literaturi in so samo delno pravilni. Tako smo lahko dokazali domnevo M. Aouchicha, G. Caporossija in P. Hansena v zvezi z Balabanovim in Randičevim indeksom. Poleg tega pokažemo, da za vsak  $k$  in dovolj velik  $n$  velja: prvih  $k$  grafov reda  $n$  z velikimi vrednostmi Balabanovega indeksa so drevesa. Članek sklenemo z rezultatom o stekališčih vsotno-Balabanovega indeksa.

*Ključne besede: Topološki indeks, Balabanov indeks, vsotni-Balabanov indeks, Randičev indeks.*

*Math. Subj. Class.: 05C12, 05C90*

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\*Avtorji priznavajo delno podporo s strani slovaških raziskovalnih dotacij VEGA 1/0142/17, VEGA 1/0238/19, APVV-15-0220 in APVV-17-0428, Javne agencije za raziskovalno dejavnost Republike Slovenije ARRS, program št. P1-0383, in nacionalnega štipendijskega programa Slovaške republike SAIA.

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