INSANIA : Jurnal Pemikiran Alternatif Kependidikan
Vol. 28 No. 1a (Special Issue), 2023, 1-13
e-ISSN: 2598-3091; p-ISSN: 1410-0053
DOI: 10.24090/insania.v28i1.9465

Parental Understanding of Safe Internet Access for Early Childhood

Ellen Prima [1]✉ , Dewi Ariyani[1]

[1]*Islamic Early Childhood Education, Universitas Islam Negeri Profesor Kiai Haji Saifuddin Zuhri Purwokerto*
Jl. A Yani No. 40 A Purwokerto Utara , Banyumas 53126, Indonesia
✉ellen.psi07@gmail.com

Received 2 June 2023; Accepted 31 July 2023; Published 4 Auguts 2023

Abstract: This study examines parental comprehension regarding safe internet access using a qualitative descriptive approach. Participants included parents of early childhood students from various state kindergartens in Purwokerto: West Purwokerto, South Purwokerto, East Purwokerto, and North Purwokerto. Data collection encompassed stages of data collection, reduction, categorization, presentation, and verification. Findings revealed that parents' understanding of safe internet access primarily focused on digital utilization. This level of understanding was achieved through diverse avenues, including educational counseling and parenting activities conducted within schools. Parents demonstrated their preference for educational websites and applications as learning resources, and facilitated online learning by providing internet-enabled devices. Furthermore, parents reinforced internet access governance by establishing rules and agreements governing gadget and internet use. This governance was further supported through ongoing monitoring while children engaged with devices, both during and outside of learning contexts.

Keywords: early childhood; safe internet; internet access; parental understanding.

A. Introduction

Entering the 21st century, technology has rapidly evolved in tandem with the changing times. Technology is a form of process that enhances added value and is also an integral part of a specific system (Miarso, 2007). Technology emerges in various forms and types that are renewed over time. Technological progress is an inevitable matter, as it serves as a means for humans to solve various fundamental problems in their lives. This aligns with the advancements in the field of knowledge.

Various innovations continue to emerge as forms of technological progress. The purpose of these innovations is to provide convenience to users, enabling them to utilize technology positively. Technology also introduces breakthroughs or new ways for humans to carry out their daily activities. This has made technological products highly essential for many people.

One form of technology that has rapidly developed over the past decades is the internet. Since its inception in the early 1970s, the internet has evolved and exerted influence on human life. The internet facilitates various fields, including easing communication access with people from all around the world, serving as a platform for transactions, searching for various information, and more. In addition to its increasing speed, the internet can now be accessed through various devices. Especially with the remarkable development of smartphone features, the internet has become something accessible to people anywhere and anytime.

Gadgets have become ubiquitous possessions among individuals in the present era, including children. A survey conducted by Common Sense Media in Philadelphia revealed that children as young as 4 years old already possess their own gadgets without parental supervision (https://cnnindonesia.com). The survey further disclosed that 70 percent of parents intentionally provide gadgets to their children aged 6 months to 4 years, to keep them engaged while parents attend to household chores. Moreover, 65 percent of parents resort to this practice to pacify their children in public settings. This suggests that young children have become accustomed to the presence of gadgets in their daily lives.

The internet offers a diverse array of content, and while it provides positive benefits, it also presents various risks. De Moor's delineation of internet-related threats encompasses content threats (provocative content and misleading information), contact threats (cyberbullying, sexual harassment, and privacy breaches), and commercial threats (misuse of personal data and fraud) (Valcke et al., 2011).

In Indonesia, We Are Social reported that as of January 2019, there were 150 million active internet users, equivalent to 56 percent of the total Indonesian population. Among these users, approximately 142.8 million accessed the internet through mobile devices (http://websindo.com). Indonesia ranks as the fourth-highest internet user in Asia. The internet user demographic is not confined solely to adults. As the usage of gadgets

continues to rise, even children are becoming internet users. A survey conducted in London found that children under the age of 6 were already accessing the internet (https://techno.okezone.com). This percentage increases for older children. For the technologically native generation, separation from technology seems implausible, given their birth amidst rapid technological advancements. Gadgets, tablets, laptops, and easy internet access are integral to their existence.

In this context, the profound integration of gadgets and the internet into the lives of young children necessitates a comprehensive understanding of the benefits, risks, and challenges they bring. Efforts to ensure responsible gadget usage among children are paramount, aligning with both technological advancement and the safeguarding of children's well-being.

In Indonesia, a multitude of studies conducted by various researchers have yielded intriguing findings that warrant attention. Indonesian children begin to acquaint themselves with the internet and actively engage with it at a remarkably young age, often before reaching five years old. The relationship between children and internet usage, particularly those under the age of 12, raises numerous questions. This is attributed to the potential addictive nature of the internet among children, which can significantly influence their social activities (Kurnia et al., 2017).

With the increasing ease of internet access for children, it becomes imperative for parents to take greater responsibility. Given the array of risks associated with internet use, children should not be left to navigate the online realm without proper guidance (Yusuf et al., 2014). Cases such as child grooming have emerged due to the ease of internet access. This phenomenon sees children becoming targets of online crimes, often infiltrating platforms such as the gaming application Hago.

The year 2020 marked the onset of the global Covid-19 pandemic. The widespread transmission of the virus prompted policymakers to implement physical distancing measures as a means to slow down its propagation within communities. These policies led to significant transformations across various sectors, notably affecting education (https://pusdatin.kemdikbud.go.id/).

The implementation of physical distancing measures ushered in a new era for education, requiring adaptation to a novel approach to learning in response to the

prevailing circumstances. This change was initiated to ensure the continuity of educational services. In-person learning, which was previously the norm, transitioned into virtual platforms, demanding the integration of technology products such as gadgets into the learning process.

The shift towards online learning mechanisms has naturally led to an increased likelihood of children interacting with gadgets. The screen time of children using gadgets has escalated in tandem with the implementation of online learning. Consequently, parents, being responsible for remote education through online systems, are compelled to possess a comprehensive understanding of safe internet access.

As parents of digitally native children, they are tasked with acquainting themselves with, guiding, and teaching safe internet usage appropriate for their children's age, especially for early childhood (Setiansah et al., 2021). However, disparities in educational backgrounds, economic statuses, and occupations contribute to varying understandings of internet usage among parents (Marjiyah & Ningsih, 2021). Yet, parents are at the forefront of supervising, educating, and guiding their children's activities. To effectively oversee, educate, and guide young children's internet usage, parents must possess a firm grasp of safe internet access for this age group.

Research conducted in Purwokerto underscores the ubiquity of internet usage among children and adolescents today (Setiansah et al., 2021). However, parents need to recognize the importance of supervising their children's internet usage to mitigate the risks of cybercrime. Hence, parents of young children need to thoroughly comprehend safe internet practices, allowing them to effectively monitor their children's online activities. This is pivotal since parents play a significant role in shaping children's upbringing, including their engagement with technology. Consequently, parents can aid their children in navigating the internet judiciously and safely.

B. Method

This study employs a qualitative descriptive approach aimed at providing an accurate portrayal of the characteristics of individuals, situations, phenomena, or specific groups (Soerjono & Abdurrahman, 1999). The subjects of this study are parents of early childhood children in Purwokerto, encompassing West Purwokerto State Kindergarten,

South Purwokerto State Kindergarten, East Purwokerto State Kindergarten, and North Purwokerto State Kindergarten. The research was conducted from June to September 2021. Data collection was executed through observation, interviews, and documentation. Data analysis followed several stages, including data collection, data reduction, data categorization, data presentation, and data verification. The validity of the data was ensured through source and time triangulation.

C. Result and Discussion

1. Understanding of Early Childhood Parents in Purwokerto Regarding Safe Internet Usage

The advancement of internet technology has brought diverse effects to society. The internet has various positive impacts, but it also carries negative consequences if excessively used (Gani, 2015). Therefore, the role of parents in safeguarding, supervising, and guiding children's internet access is crucial (Hariyadi & S, 2018).

The internet provides significant benefits to children by granting access to a wide array of positive information and supporting the development of their knowledge, creativity, and skills (Nurjanah, 2021). Nevertheless, excessive or unsupervised internet usage can lead to adverse effects. Hence, the role of parents becomes pivotal in monitoring and directing children to use the internet wisely and responsibly. Parents need to actively limit children's access to inappropriate content and be aware of online risks such as cyberbullying and personal information leakage. Through the establishment of clear rules and boundaries, parents can create a safe digital environment and foster a healthy relationship with their children through open communication about their online experiences. These measures collectively aim to support children's positive development in the face of the advancing digital era.

The understanding of parents regarding safe internet usage for early childhood is a relevant and significant topic in the current digital age. Young children are increasingly exposed to various technologies and easy internet access, thereby posing safety risks to them (Miranti & Putri, 2021).

2. Understanding of Early Childhood Parents in Purwokerto Regarding Family Internet Practices

Based on the findings of the aforementioned research, it is evident that parents' understanding regarding safe internet usage for early childhood includes aspects such as children's online world access, establishment of written rules, teaching children to protect their personal identity, selecting strategic locations for internet access, becoming companions for children, maximizing browser features like safety filters to screen harmful content or information for children, utilizing filtering facilities capable of blocking websites containing dangerous content or information for children, and recognizing safe websites suitable for children's age. These aspects align with the parental education guidelines concerning safe internet usage issued by the Ministry of Education and Culture in 2016, which encompass challenges posed by the internet for parents, introducing the internet according to children's ages, engaging in family internet practices, and maintaining online safety (Raraswati, 2016). Internet access is closely tied to digital literacy.

According to Paul Gilster's book titled "Digital Literacy," digital literacy is defined as the ability to comprehend and use information in various forms from a wide array of sources, accessed through computer devices. Digital literacy constitutes life skills that encompass not only the ability to use technology, information, and communication devices but also the ability to socialize, learn, and possess attitudes, critical, creative, and inspirational thinking as digital competencies. Fundamental principles of digital literacy development include understanding, interdependence, social factors, and curation. Firstly, the concept of understanding refers to a basic comprehension involving the ability to extract implicit and explicit ideas from media. Secondly, interdependence implies how one form of media relates to others in terms of potential, metaphorical, ideal, and literal connections. Thirdly, social factors denote sharing not merely as a means to display personal identity or distribute information but also as a way to convey messages. The act of sharing information, to whom information is given, and through which media information is conveyed not only influences the long-term success of the media itself but also shapes an organic ecosystem for seeking, sharing, storing information, ultimately reshaping the media itself. Lastly, curation pertains to information storage, such as

content preservation on social media using methods like "save to read later." It encompasses a type of literacy linked to understanding the value of information and preserving it for easy access and long-term utility. Advanced curation has the potential to become a form of social curation, where collaboration is employed to discover, gather, and organize valuable information (Nasrullah et al., 2017).

The approach to digital literacy encompasses two aspects, namely conceptual and operational approaches. The conceptual approach focuses on cognitive and socio-emotional developmental aspects, while the operational approach emphasizes the technical skills of media usage itself, which cannot be disregarded. The development principles of digital literacy, according to Mayes and Fowler, are hierarchical, consisting of three levels. Firstly, there is digital competence, encompassing skills, concepts, approaches, and behaviors. Secondly, digital usage refers to the application of digital competence within specific contexts. Lastly, digital transformation demands creativity and innovation within the digital realm. Thus, it can be inferred that parents' understanding of safe internet access for early childhood falls under the basic development principle of digital literacy, specifically level 2, which is digital usage.

As parents, they must fulfill children's rights, one of which is the right to receive adequate education and facilities to foster their wise development. Presently, the abundance of information accessible online requires individual understanding, particularly on the part of parents, to effectively educate their children. The evolving demands of the era necessitate parents to comprehend internet safety for children, enabling educational and learning processes to align with their age while also cultivating wise internet usage (Anidar, 2017). Therefore, parents need to possess an understanding of safe internet usage for early childhood, further exacerbated by the ongoing pandemic situation that has led to increased gadget usage with specific applications for learning purposes. This corresponds with Kurt Lewin's cognitive theory that each individual exists within a psychological field of forces, where the space they react within is termed "life space." Life space encompasses the environmental manifestations in which individuals react, including encountered people, material objects, and psychological functions. Learning, therefore, occurs as a result of changes in cognitive structure. These changes are

outcomes of two kinds of forces: cognitive field structure and the internal motivational needs of individuals (Khadijah, 2014).

According to Jerome Bruner, parents' understanding of safe internet usage is linked to their self-directed learning through experiences and experiments to discover new knowledge and abilities (Anidar, 2017). From a cognitive psychology perspective, an effective way to enhance the quality of educational outcomes is by developing learning programs that optimize learners' intellectual mental engagement. The current pandemic condition has compelled learning to shift online, necessitating direct parental involvement in guiding their children, especially in using the internet safely.

Jerome Bruner argues that parental understanding is linked to cognitive processes. These cognitive processes can be delineated into three stages: the information stage, transformation stage, and evaluation stage. The information stage marks the initial phase of acquiring new knowledge or experiences. The transformation stage involves comprehending, digesting, and analyzing new knowledge, then transforming it into novel forms that may benefit other contexts. The evaluation stage serves to ascertain the accuracy of transformations from the second stage. Consequently, it can be analyzed that the information stage concerning parental understanding of safe internet access pertains to how parents acquire new knowledge or experiences related to using applications on gadgets, enabling them to guide children in using these applications wisely according to their needs and experiences while assisting them in learning. The transformation stage concerning parental understanding of safe internet usage focuses on how parents can engage children joyfully during the learning process, ensuring effectiveness in online learning, and incorporating safety measures like setting up filters on gadgets or browsers to shield children from harmful content. The evaluation stage concerning parental understanding of safe internet access questions the adequacy of parental guidance, the effective use of security measures, and whether they can effectively filter content harmful to children, ensuring a disruption-free learning environment (Nisa, 2020).

Based on the aforementioned research results, it is evident that parents' level of understanding regarding safe internet access for early childhood correlates with various aspects or components of digital literacy, including the availability of quality learning resources in both quantity and diversity, expanded access to such resources, increased

public involvement, and strengthened governance. The first aspect concerns the availability of a substantial quantity and diverse range of quality learning resources, encompassing the Provision of Digital Media-Related Reading Materials at Home and the Selection of Educational Websites and Applications as Family Learning Resources. The provision of digital media-related reading materials at home addresses the increase in the quantity and variety of technology-related reading materials in forms such as newspapers, magazines, books, and digital copies accessible through computers and devices. The selection of educational websites and applications as family learning resources emphasizes the usage of educational websites and applications by family members. For instance, parents can use sites like sahabatkeluarga.kemdikbud.go.id or keluargakita.com, while children can access sites and apps for knowledge enhancement and creativity development, like apps for smart children, guessing games, math games, or sites like kbbi.kemdikbud.go.id, inibudi.com, and the like. These explanations align with statements from parents, such as their role in determining accessible applications for their children, using specific apps on smartphones to monitor children's internet activities, and using the internet to find family activities (Nisa, 2020).

The second aspect concerns the expansion of access to quality learning resources and the coverage of learning participants, elucidating the Provision of Computers, Laptops, Gadgets, and Internet Access in Families. This relates to the essential effort within this digital era's knowledge development. The required learning resources can be efficiently obtained using internet access. The needs of families, particularly children learning about information and communication technology, should be supported by available computers and internet at home. Parents and children can partake in online classes covering various knowledge and skills. This explanation aligns with parents' statements that a majority of them provide separate gadgets to their children and have a list of accessible applications for them.

The third aspect pertains to the increased involvement of the public, focusing on sharing sessions. The sharing sessions discussed in this research are related to parenting classes. Parenting classes are spaces where parents share knowledge about child upbringing. These parenting classes, which also function as sharing sessions, serve as a platform for parents to share and learn together. Sharing experiences as parents and

learning to become better parents collectively. Through sharing sessions, participants gain information about the latest parenting techniques that can be applied at home. Within these sharing classes, various topics, particularly those related to child-rearing, can be discussed. Given the rising phenomenon of gadget addiction among children, especially during the COVID-19 pandemic, schools have introduced digital parenting classes. According to Rullie Nasrullah and colleagues, sharing sessions can be organized by inviting experts, practitioners, and volunteers supported by the central government, local government, business and industry sectors, educational volunteers, and media to share information on how they apply digital technology in their professions and daily lives. The participation of experts, practitioners, and volunteers, whether individually or institutionally, is associated with the use and utilization of information and communication technology for families. Sharing sessions can be conducted through activities within schools and communities, with the focus of discussions tailored to the needs of digital literacy development within families (Nasrullah et al., 2017).

The fourth aspect involves the strengthening of governance, encompassing the establishment of Family Agreements or Rules and parental guidance. Based on interviews with parents whose children attend Purwokerto State Kindergarten, it is apparent that they establish specific rules when their children access the internet, determine the location where their children access the internet, some parents allow internet access outside of school hours, and engage in dialogues with their children about their internet activities. Additionally, data related to parents' basic efforts in guiding their children's internet usage reveals five factors. Firstly, parents instill religious or spiritual values in their children. Secondly, parents introduce positive content to their children. Thirdly, parents set boundaries for internet usage time. Fourthly, parents provide guidance and supervision on how to utilize technological advancements. Fifthly, parents enhance their knowledge about modern technological developments. These findings align with Ademiye Soysal's assertion that parents should accompany their children while they access the internet to understand what their children are accessing and to encourage openness (communication) if there are applications or content unsuitable for their age (Soysal, 2020). Similarly, Nurul Novitasari suggests numerous strategies that parents can employ to guide their children's internet usage, including selecting age-appropriate content, being

selective in choosing gaming applications on gadgets, participating in their children's online activities, limiting their gadget usage time, and engaging them in positive activities (Novitasari, 2019).

D. Conclusion

Based on the presented data and research discussion, it can be concluded that parental understanding regarding safe internet access for young children in Purwokerto falls under the category of digital usage. This research demonstrates that the level of parental comprehension concerning safe internet access is situated within the scope of digital usage. Parents have not only mastered the skills, concepts, and behaviors associated with safe internet usage but have also demonstrated the ability to employ safe internet practices within specific contexts.

Achieving the level of digital usage has been facilitated through various means, including the reinforcement obtained by parents through educational activities or parenting classes held within schools. Furthermore, parents have been proactive in selecting educational websites and applications to serve as learning resources. They have also equipped their children with internet-enabled devices for online learning. Additionally, parents have reinforced governance measures for safe internet usage, such as devising rules or agreements regarding gadget and internet access. This reinforcement is further supported by parental guidance during their children's gadget usage, both during online learning and outside of educational contexts.

References

Ali, M. (1993). *Strategi Penelitian Pendidikan*. Aksara.

Anhar. (2016). Panduan Bijak Belajar Internet untuk Anak. Adamssein Media.

Anidar, J. (2017). Teori Belajar Menurut Aliran Kognitif Serta Implikasinya dalam Pembelajaran. *Jurnal al-Taujih: Bingkai Bimbingan dan Konseling Islami*, 3(2), 8-16. https://doi.org/10.15548/atj.v3i2.528

Arikunto, S. (2002). *Prosedur Penelitian Suatu Pendekatan Pendakatan Praktek*. Bumi Aksara.

Chandani, H. F. N. (2018, February 8). *Okezone*. https://techno.okezone.com/read/2018/02/03/56/1854318/76-anak-berusia-di-bawah-6-tahun-mampu-akses-internet-meski-tak-aman.

Donny BU dkk. (2017). *Seri Literasi Digital: Pedoman Berinternet Aman, Nyaman, dan Bertanggung Jawab*. t.p.

Fajrina, H. N. (2015, November 4). *CNN Indonesia*. https://www.cnnindonesia.com/teknologi/20151103093518-185-89078/tingkat-kecanduan-gadget-di-usia-dini-semakin-mengkhawatirkan.

Gani, A. G. (2015). Pengenalan Teknologi Internet Serta Dampaknya. *JSI: Jurnal Sistem Informasi*, 2(2), 71-86. https://doi.org/10.35968/jsi.v2i2.49

Hariyadi, H., & S, L. A. (2018). Peran Orangtua Dalam Mengawasi Anak Dalam Mengakses Media Internet Untuk Mewujudkan Perlindungan Hak Anak. *Soumatera Law Review*, 1(2), 267-281. https://ejournal.lldikti10.id/index.php/soumlaw/article/view/3716

Hasan, M. I. (2002). *Pokok-pokok Materi Metodologi Penelitian dan Aplikasinya*. Ghalia Indonesia.

Khadijah. (2014). *Psikologi Pendidikan*. Rajagraindo Persada.

Kurnia, N., Wendratama, E., Adiputra, W. M., & Poerwaningtias, I. (2017). *Literasi Digital Keluarga Teori dan Praktik Pendampingan Orangtua terhadap Anak dalam Berinternet*. CfDS.

Marjiyah, S., & Ningsih, T. (2021). Peran Orang Tua dalam Pembelajaran Jarak Jauh pada Masa Pandemi Covid-19 di Madrasah Ibtidaiyah Muhammadiyah Cabang Purbalingga. *Jurnal Kependidikan*, 9(1), 53-68. https://doi.org/10.24090/jk.v9i1.5619

Miranti, P., & Putri, L. D. (2021). Waspadai Dampak Penggunaan Gadget Terhadap Perkembangan Sosial Anak Usia Dini. *Jendela PLS: Jurnal Cendekiawan Ilmiah Pendidikan Luar Sekolah*, 6(1), 58-66. https://doi.org/10.37058/jpls.v6i1.3205

Moleong, L. J. (1995). *Metodologi Penelitian Kualitatif*. Remaja Rosdakarya.

Miarso, Y. (2007). *Menyemai Benih Teknologi Pendidikan*. Kencana.

Nasrullah, R., Aditya, W., Satya, T. I., Nento, M. N., Hanifah, N., Miftahussururi, M., & Akbari, Q. S. (2017). *Materi Pendukung Literasi Digital*. Kementerian Pendidikan dan Kebudayaan Gerakan Literasi Nasional.

Nawawi, H. (1983). *Metode Penelitian Deskriptif*. Gajah Mada University Press.

Nisa, L. (2020). Pemanfaatan Teknologi dalam Pendidikan Anak Usia Dini. Jurnal Thufula: *Jurnal Inovasi Pendidikan Guru Raudhatul Athfal*, 8(1), 1-14. http://dx.doi.org/10.21043/thufula.v8i1.6283

Novitasari, N. (2019). Strategi Pendampingan Orang Tua Terhadap Intensitas Penggunaan Gadget Pada Anak. *Al Hikmah: Indonesian Journal of Early Childhood Islamic Education*, 3(2), 167-188. https://doi.org/10.35896/ijecie.v3i2.77

Nurjanah, N. E. (2021). Pembelajaran Berbasis Media Digital Pada Anak Usia Dini di Era Revolusi Industri 4.0 : Studi Literatur. *Jurnal Ilmiah Potensia*, 6(1), 66-77. https://doi.org/10.33369/jip.6.1.66-77

Ramadhan, A. (2007). *Internet dan Aplikasinya*. Elex Media Komputindo.

Raraswati, P. (2016). *Buku Seri Pendidikan Orang Tua: Internet Aman*. Kementerian Pendidikan dan Kebudayaan.

Setiansah, M., Novianti, W., Rahmawati, A., & Agustina, L. (2021). Pengembangan Model Pendidikan Literasi Internet Pada Anak Melalui Pembentukan Kelompok Teman Sebaya. *Jurnal Pikom (Penelitian Komunikasi dan Pembangunan)*, 22(2), 149-160. https://jurnal.kominfo.go.id/index.php/jpkp/article/view/3530

Samatowa, U. (2018). *Metodologi Pembelajaran Sains Untuk Pendidikan Anak Usia Dini*. Tira Smart.

Soerjono, & Abdurrahman, H. (1999). *Metode Penelitian Deskriptif*. Rineka Cipta.

Soysal, A. (2020). Upaya Orang Tua Dalam Mendampingi Penggunaan Smartphone pada Anak Usia Dini di Taman Kanak-Kanak (TK) Kharisma Bangsa Tangerang Selatan [Undergraduate thesis, UIN Syarif Hidayatullah]. *UIN Syarif Hidayatullah Institutional Repository*. https://repository.uinjkt.ac.id/dspace/handle/123456789/52233

Sugiyono. (2006). *Metode Penelitian Kuantitatif, Kualitatif dan R & D*. Alfabeta.

Sujiono, Y. N. (2009). *Konsep Dasar Pendidikan Anak Usia Dini*. Indeks.

Sunarto. (2008). *Teknologi Informasi dan Komunikasi*. Grasindo.

Valcke, M., Wever, B. D., Keer, H. V., & Schellens, T. (2011). Long Term Study of Safe Internet Use of Young Children. *Computers & Education*, 57(1), 1292-1305. https://doi.org/10.1016/j.compedu.2011.01.010

Yusuf, S., Osman, M. N., Hassan, M. S. H., & Teimoury, M. Parents' Influence on Children's Online Usage. *Procedia Social and Behavioral Sciences, 155,* 2014, 81-86. https://doi.org/10.1016/j.sbspro.2014.10.260