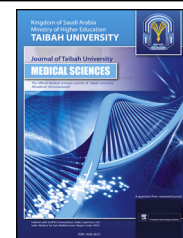




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Original Article

Comparative research performance of top universities from the northeastern Brazil on three pharmacological disciplines as seen in scopus database

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المخلص

أهداف البحث: تخضع برامج الدراسات العليا في جميع أنحاء العالم بشكل دوري لتقييم أداء البحوث من خلال مؤشرات قياس المراجع والمصادر. قمنا في هذا البحث بوصف ومقارنة الأداء البحثي لـ ١٥ جامعة من شمال شرق البرازيل، شملت ١٣ من أفضل الجامعات في أمريكا اللاتينية.

طرق البحث: تم على وجه التحديد، الحصول على وثائق بكاملها والاقتباسات ومؤشرات مستوى المؤلف لكل جامعة من قاعدة بيانات "السفير سكوبوس" وتم تحليلها ليس من أجل الإنجاز العلمي فقط، ولكن على مدى السنوات الست الماضية (٢٠١٥-٢٠١٠) أيضاً. وباستخدام مؤشرات قياس المراجع والمصادر هذه، قمنا أيضاً بالتحقيق في أداء هذه البرامج الجامعية التي تم تصنيف أوراقها في "سكوبوس" تحت فئة علم الأدوية، وعلم السموم، والمستحضرات الصيدلانية لنفس الفترة.

النتائج: وجدنا أن جامعة بيرنامبوكو الاتحادية، وجامعة سيارا الاتحادية كانتا المؤسستين الأكثر إنتاجية بوثائق عددها ١٧٨٤٧ و ١٥٠٤٨ على التوالي. وتمثل عدد الأوراق التي نشرتها كل من هاتين الجامعتين في السنوات الست الماضية أكثر من ٥٠٪ من كامل إنتاجيتها. وفيما يتعلق بإنتاجهم العلمي في علم الأدوية، وعلم السموم، والمستحضرات الصيدلانية حققت جامعة سيارا الاتحادية أكبر عدد

من الوثائق المنشورة تليها جامعة بيرنامبوكو الاتحادية وجامعة بارايبا الاتحادية. كما حصلت جامعة سيارا على أكبر عدد من الاستشهادات وأعلى مؤشرات هيرش للمؤلفين (مع أو من غير الاستشهادات الذاتية)، وشاركت أوراقها الأكثر استشهاداً مع مؤسسات أجنبية من الولايات المتحدة وألمانيا. غير أنها نشرت في مجلات ذات عامل تأثير أقل (٢.٣٢٢).

الاستنتاجات: تظهر هذه الدراسة أين تقع كل من هذه الجامعات ويمكن أن تكون مفيدة في تحديد المتعاونين المحتملين في هذه المجالات من المعرفة.

الكلمات المفتاحية: الاستشهادات؛ وزارة العلوم والتكنولوجيا والابتكار والاتصالات؛ مؤشر مستوى المؤلف؛ شمال شرق البرازيل؛ جامعة سيارا الاتحادية

Abstract

Objectives: Postgraduate programmes around the world are periodically subjected to research performance evaluation through bibliometric indicators. In this research, we characterized and compared the research performance of 15 universities from Northeastern Brazil, in which 13 were among the top Universities of the Latin America.

Methods: Specifically, total documents, citations and the h-index of each university were retrieved from the Elsevier Scopus database and were analysed not only for historical scientific achievement but also across the period of the past 6 years (2010–2015). Using these bibliometric indicators, we also investigated the performance of programmes at these Universities that have their papers indexed in the Scopus database under the category of

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“Pharmacology, Toxicology and Pharmaceuticals” for the same period.

Results: We found that the Federal University of Pernambuco (UFPE) and the Federal University of Ceará (UFC) were the most productive institutions, producing 17847 and 15048 documents, respectively. The number of papers published by each of these universities in the past six years represented more than 50% of their entire productivity. With regards to their scientific output in “Pharmacology, Toxicology and Pharmaceutics”, UFC showed the highest number of published documents followed by UFPE and the Federal University of Paraíba (UFPB). UFC received the highest h-index (with and without self-citations) and number of citations and shared their most cited papers with foreign institutions from the USA and Germany. However, papers from UFC were published in journals with lower impact factors (2.322).

Conclusions: The present study shows where each of these universities stands and can be helpful in identifying potential collaborators in these areas of knowledge.

Keywords: Citations; CNPq; h-index; Northeastern Brazil; UFC

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Introduction

In the past several years, more attention has been given to evaluating the research performance or scientific output of postgraduate programmes within institutions of higher education.^{1,2} Such evaluation generally uses bibliometric parameters, such as the number of papers published by a program and the number of citations produced, excluding self-citations.³ In addition, this analysis can be helpful in identifying potential collaborators and to inform research strategy development. For instance, through bibliometric analysis, Noyons et al.⁴ identified centres of excellence in life science research in Europe.

More recently, citation analysis has been cogitated as a way to identify research groups.⁵ Therefore, in Brazil, research groups from Postgraduate Programmes are experiencing a period of increasing competition in terms of scientific productivity, as productivity constitutes one important factor in getting financial resources from the main funding agencies CAPES (Coordination for the Improvement of Higher Education Personnel) and CNPq (National Council for Scientific and Technological Development). In this context, research collaboration has steadily increased over the past years.^{6–8}

Numerous databases have been used for bibliometric analyses, among which Scopus (from Elsevier) and Web of

Science (from Thomson Reuters) have been at the forefront due to their multidisciplinary character. Although a comparative study of the two databases revealed no clear difference,⁹ a recent study demonstrated that they differ in terms of their scope and the number of documents they contain within a tolerable margin of deviation.¹⁰ Nevertheless, the databases are well-accepted by the scientific community as efficient tools for assessing and comparing the performance of researchers, institutions, and countries among others.^{3,11}

The Scopus subject category “Pharmacology, Toxicology and Pharmaceuticals” contains some important subareas of the biopharmaceutical sector.¹² A look at the scopus database revealed a great increase in the number of papers produced by Brazilian Higher Institutions (data not shown) in the past 6 years (i.e., from 2010 to 2015) in this subject category, especially from the northeastern region (where there is scarcity of financial resources that does not favour research development). The formation of new research groups with consolidated and highly productive investigators and/or the consolidation of pre-existent research groups are some possible explanations for this increase. This phenomenon has certainly boosted the rankings of some institutions from northeastern Brazil, placing them among the best universities of the Latin America, with University of São Paulo (from the southeastern region) in the first position.¹³

In spite of the growth of research and development in the chosen Scopus subject category (Pharmacology, Toxicology and Pharmaceuticals) by institutions from the northeastern region of Brazil, there are no bibliometric studies on this Scopus subject category particularly focused on this region. Thus, the present study was undertaken to characterize and compare the research performance of top institutions from northeastern Brazil in the “Pharmacology, Toxicology and Pharmaceuticals” subject category by evaluating not only their historical achievements (which may not be relevant in the actual scenario) but also their achievements in the last 6 years (2010–2015), as represented by two periods of assessment of programmes by the CAPES. Particularly, we analysed these institutions’ total documents indexed in the Scopus database, citations (with and without self-citations) and h-index (with and without self-citations).

Materials and Methods

Selection of institutions

The institutions or universities used were selected from a publication by the consultancy QS (Quacquarelli Symonds) Media Research Company, which is a British company specializing in education and study abroad. According to the QS World University Ranking (2016), 13 universities from the northeastern region out of 89 total Brazilian institutions appeared to be among the best of their kind in Latin America. It is important to note that the criteria for classification included research, number of publications, number of lecturers with PhD degrees, academic reputation, and impact of the institution on the web. The best rated

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