LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
KARYA ILMIAH: JURNAL ILMIAH

Judul Jurnal Ilmiah (Artikel) : Enzymatic purification of glucomannan from *Amorphophallus oncophyllus* using α-amylase
Jumlah Penulis : 5 orang
Status Pengusul : Penulis pertama/ ~~penulis ke - 3/~~ penulis korespondensi
Identitas Jurnal Ilmiah :
a. Nama Jurnal : Bioscience journal
b. Nomor ISSN : 1981-3163 (Online)
c. Volume, nomor, bulan, tahun : Vol. 35, No. 01, pp.277-288, Januari/Februari 2019
d. Penerbit : Universidade Federal de Uberlândia - Campus Umuarama, Brazil
e. DOI Artikel : 10.14393/BJ-v35n1a2019-41766
f. Alamat Web
JURNAL : http://www.seer.ufu.br/index.php/biosciencejournal/issue/view/1744
ARTIKEL : http://www.seer.ufu.br/index.php/biosciencejournal/article/view/41766/25415
g. Terindeks : Scopus/Scimagojr/SJR=0,217 (2019) dan Q3

Kategori Publikasi Jurnal Ilmiah (Beri ✓pada katergori yang tepat)
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- [ ] Jurnal Ilmiah Nasional Terakreditasi
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Komponen yang dinilai	Nilai Reviewer		Nilai rata-rata
	Reviewer 1	Reviewer 2	
a. Kelengkapan unsur isi Artikel (10%)	4	4	4
b. Ruang lingkup dan kedalaman pembahasan (30%)	11	10	10,5
c. Kecukupan dan kemutakhiran data/ informasi dan metodologi (30%)	11	11	11
d. Kelengkapan unsur dan kualitas terbitan/ jurnal (30%)	10,5	11	10,75
Total = (100%)	**36,5**	**36**	**36,25**
Nilai Pengusul (kontribusi pengusul sebagai penulis pertama) = (60% x 36,25)			**21,75**

Semarang, 1 Februari 2021

Reviewer II

Prof. Ir. Didi Dwi Anggoro, M. Eng, PhD
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Unit Kerja : Departemen Teknik Kimia FT UNDIP

Reviewer I

Prof. Dr. Ir. Abdullah, MS
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Unit Kerja : Departemen Teknik Kimia FT UNDIP

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Komponen yang dinilai	Nilai Maksimal Jurnal Ilmiah			Nilai Akhir yang diperoleh
	Internasional [40]	Nasional Terakreditasi [ ]	Nasional Tidak Terakreditasi [ ]	
a. Kelengkapan unsur isi Artikel (10%)	4			4,0
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c. Kecukupan dan kemutakhiran data/ informasi dan metodologi (30%)	12			11,0
d. Kelengkapan unsur dan kualitas terbitan/ jurnal (30%)	12			10,5
Total = (100%)	**40**			36,5
Nilai pengusul = 60 % x 36.5				**21.9**

Catatan penilaian artikel oleh Reviewer:

1. Kesesuaian dan kelengkapan unsur isi iurnal:
Unsur isi jurnal lengkap, terdiri dari title, abstract, introduction, experimental method, results and discussion, conclusions, acknowledgement, references. Artikel ditulis sesuai dengan bidang pengusul yaitu Teknik Kimia.

2. Ruang lingkup dan kedalaman pembahasan:
Artikel berisi tentang studi optimasi pemurnian glucomannan dari tepung porang dengan cara hidrolisa enzimatik menggunakan Amylase . Pembahasan cukup dalam, dari 36 sitasi yang digunakan, 20 diantaranya digunakan untuk pembahasan hasil.

3. Kecukupan dan kemutakhiran data/infrmasi dan metodologi:
Data pendukung dan acuan banyak dan mutakhir. Jumlah Pustaka ada 36 dan dua puluh empat sitasi yang digunakan adalah baru (10 tahun terakhir).

4. Kelengkapan unsur dan kualitas terbitan/jurnal:
Jurnal terindeks skopus dan memiliki faktot dampak (SJR=0,22). Kwalitas penerbit sangat bagus (Elsievier) dan masuk katagori Q3.

Semarang, 5 November 2020
Reviewer I

Prof. Dr. Ir. Abdullah, MS
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Unit Kerja : Departemen Teknik Kimia FT UNDIP

LEMBAR
HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW*
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Hasil Penilaian *Peer Review* :

Komponen yang dinilai	Nilai Maksimal Jurnal Ilmiah			Nilai Akhir yang diperoleh
	Internasional [40]	**Nasional Terakreditasi** [ ]	**Nasional Tidak Terakreditasi** [ ]	
a. Kelengkapan unsur isi Artikel (10%)	4			4
b. Ruang lingkup dan kedalaman pembahasan (30%)	12			10
c. Kecukupan dan kemutakhiran data/ informasi dan metodologi (30%)	12			11
d. Kelengkapan unsur dan kualitas terbitan/ jurnal (30%)	12			11
Total = (100%)	**40**			**36**
Nilai pengusul = 60 % x 36,00				**21,60**

Catatan penilaian artikel oleh Reviewer:

1. Kesesuaian dan kelengkapan unsur isi iurnal:
- **Artikel sesuai dengan bidang Ilmu Teknik Kimia, bidang teknologi pangan.**
- **Unsur isi jurnal lengkap sesuai kaedah penulisan ilmiah, yaitu: Judul, Abstrak, Keywords, Introduction, Materials and Methods, Results and Discussion, Conclusion, dan Refrences.**
- **Format penulisan isi, grafik, table dan daftar Pustaka sesuai kaedah penulisan ilmiah.**

2. Ruang lingkup dan kedalaman pembahasan:
- **Ruang lingkup tentang teknologi pangan dan optimasi.**
- **Pembahasan artikel cukup mendalam dengan pembahasan ilmiahnya dan dilengkapi dengan beberapa grafik dan table sehingga memudahkan untuk memahami pembahasan.**
- **Dalam pembahasan juga dilengkapi dengan Analisa FTIR dan SEM, sehingga memperdalam pembahasan scientifiknya.**

3. Kecukupan dan kemutakhiran data/informasi dan metodologi:
- **Informasi dalam artikel mutakhir. Hal ini dapat dilihat dari 34 daftar Pustaka, 29 daftar Pustaka yang terbit kurang dari 10 tahun yang lalu.**
- **Metodologi dalam artikel jelas dan menggunakan Analisa peralatan mutakhir, yaitu FTIR dan SEM.**
- **Similarity index artikel 14%. Hal ini mengindikasikan bahwa artikel tidak plagiat.**

4. Kelengkapan unsur dan kualitas terbitan/jurnal:
- **Unsur jurnal lengkap dan dicantumkan volume, issu, dan tanggal terbitnya.**
- **Kualitas jurnal baik dan ter-index Scopus/Scimagojr/SJR=0,217 (2019) dan Q3.**

Semarang, 09 Nopember 2020
Reviewer II

Prof. Ir. Didi Dwi Anggoro, M. Eng, PhD
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Bioscience Journal

Scopus coverage years: from 2009 to Present

Publisher: Univ Feder Uberlandia

ISSN: 1516-3725 E-ISSN: 1981-3163

Subject area: Agricultural and Biological Sciences: General Agricultural and Biological Sciences

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Category	Rank	Percentile
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Bioscience Journal

Country	Brazil - SIR Ranking of Brazil
Subject Area and Category	Agricultural and Biological Sciences Agricultural and Biological Sciences (miscellaneous)
Publisher	Universidade Federal de Uberlandia - SCImago Institutions Ranking
Publication type	Journals
ISSN	19813163, 15163725
Coverage	2009-2020
Scope	The Bioscience Journal is an interdisciplinary electronic journal that publishes scientific articles in the areas of Agricultural Sciences, Biological Sciences and Health Sciences. Its mission is to disseminate new knowledge while contributing to the development of science in the country and in the world. The journal is published every two months, in English. The opinions and concepts expressed in the published articles are the sole responsibility of their authors.

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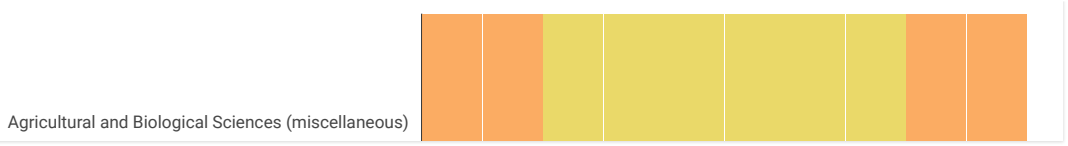
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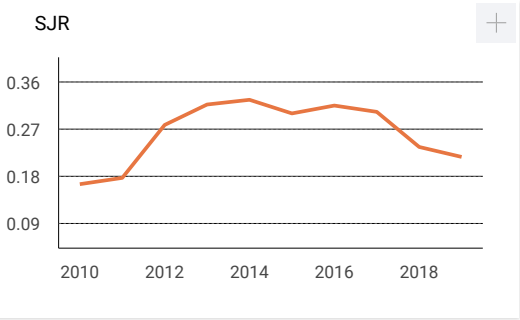
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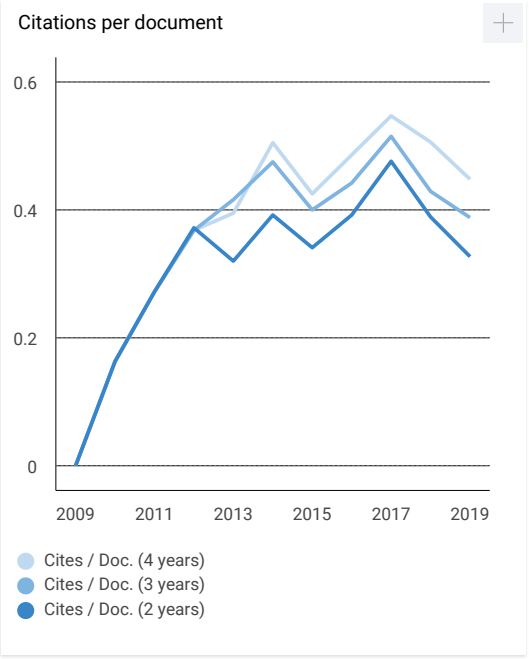
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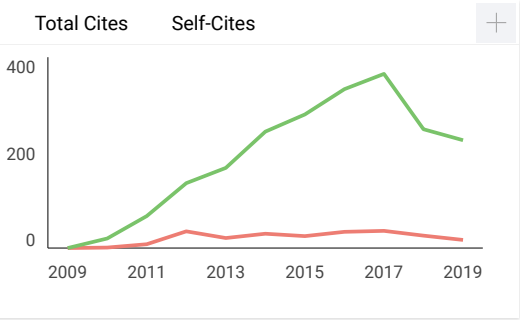
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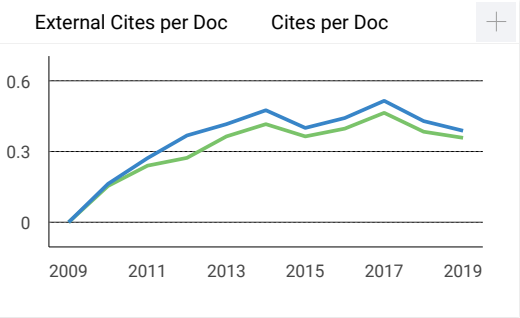
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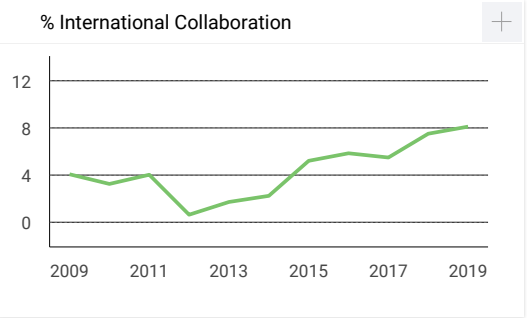
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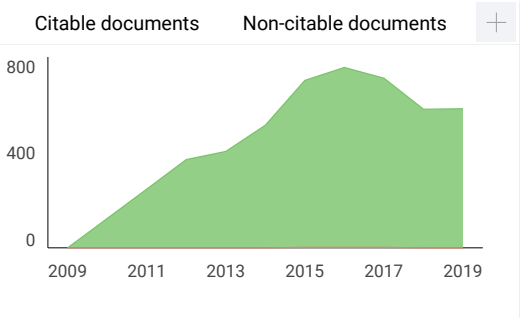
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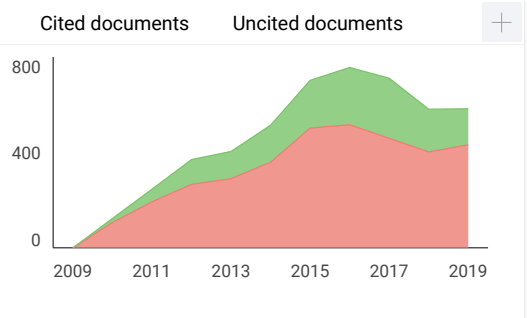
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Thank you a lot for helping me

Best regards

Leta R. Levis
Ass.professor on Agricultural Education and Extension, Agribusiness Depart. Agricultural Faculty, Nusa Cendana University, Kupang, Indonesia
Mobile 085 239 322 915

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Biological Sciences

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RELATIVE EFFICACY OF ORGANIC SUBSTRATES ON MAIZE ROOT PROLIFERATION UNDER WATER STRESS

EFICÁCIA RELATIVA DE SUBSTRATOS ORGÂNICOS NA PROLIFERAÇÃO DE RAÍZES DE MILHO SOB ESTRESSE HÍDRICO

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ABSTRACT: The aggravating threat for today's agriculture is provision of food security to ever-escalating population utilizing scarce resources. Water scarcity is restraining humans to produce more from drops of water in place of gallons. Root is present at soil-plant interface and is main water extractor for plant. Its growth pattern varies as soil moisture conditions fluctuates. Present pot study consisting of two factors i.e. organic substrates (Farm manure, Poultry Manure and Molasses) and different water stress levels {50, 75, 100 and 125% of available water contents (AWCs)} using maize as test crop to assess their impact on different growth parameters (especially root growth). The experiment was conducted using completely randomized design CRD under factorial arrangement. Root length (44.5 cm), root fresh & dry biomass (71.1 g and 24.3 g, respectively), root diameter (1.73 mm), root volume (0.24 cm^3) and root length density (7.4 x 10^{-3} cm cm^{-3}) were observed in farm manure treated pots at 75% AWC that was statistically indistinguishable from all other treatments at same water level and 100% water availability but eloquently greater than plants of all treatments at 50% and 125% available water contents. Shoot length, dry and fresh weights were observed greater in plants having 100% available moistures. They were statistically at par with 75% water treated plants. Comparing treatments for all the parameters in multivariate cluster analysis it was concluded that 75% available water contents produce almost similar to 100% along with the benefit of water security.

KEYWORDS: Organic. Maize. Root. Proliferation. Drought.

INTRODUCTION

Plant roots are major contributors of organic matter and structural stability of soil, directly through root material itself, and indirectly through stimulation of rhizosphere biological activities. They are involved in particle aggregation, more importantly polysaccharide molecules secretion. Glomalin production by mycorrhizae (RILLIG et al., 2002) play central role in aggregation that had been explicitly evidenced (SCHREINER et al., 1997). Counter production of exopolysaccharides (EPS) by rhizosphere microbiota modifies soil structure of sunflower root surfaces vicinity, counteracting the negative impact of water deficit on plant growth (ALAMI et al., 2000).

Water and its movement through soil-plant-atmosphere is crucial for photosynthesis, enzyme activity, metabolite transpiration and productivity of growing grains (NACEU et al., 1999). Evapotranspiration, is a main component of water balance (GENTINE et al., 2007; PARASURAMAN et al., 2007) and grain yields can be described as a linear function of total evapotranspiration (ET) for most crops (VAUX; PRUITT, 1983). Scheduled irrigation at different growth stages can improve water use efficiency according to several studies (WANG et al., 2002; FANG et al., 2010). JIN et al. (1999) also found that over irrigation can decrease crop water use efficiency, while deficit irrigation may result in more production and WUE. Kang et al. (2002) also reported that grain yield and water use efficiency were strongly affected by soil water contents and irrigation schedules.

Arid climate, extensive cultivation, residue burning, exhaustive crop rotation and mismanagement had lead the soils to possess organic carbon less than 1%, that was the reason for conduction of numerous studies with organic substrates. Chief drive was to determine their nutrient equivalence with synthetic fertilizers and their non-nutrient benefits (TANDON, 1997). Long term experiments showed "fatigue" symptoms, witnessing stagnant and declined yields (DAWE et al., 2000; DUXBURY et al., 2000; LADHA et al., 2003). The major reason put forward for this stagnant yield was decline in organic matter quality and quantity (DAWE et al., 2000; YADAV et al., 2000; LADHA et al., 2003). Long term fertilizer management, manure and compost application, residue incorporation, green manuring, reduced or zero tillage, crop rotation and waste land restoration enhanced soil carbon buildup and storage (KIMBLE et al., 2002). These practices not only sustained the

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Trichoderma SPECIES DIVERSITY IN RHIZOSPHERE SOILS AND POTENTIAL ANTAGONISM WITH *Fusarium oxysporum*

DIVERSIDADE DE ESPÉCIES DE Trichoderma EM SOLOS DE RIZOSFERA E POTENCIAL ANTAGONISMO COM Fusarium oxysporum

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ABSTRACT: In this study six different *Trichoderma* species were isolated form rhizosphere soils of paddy, banana, oil palm, rubber, vegetables and grass land soils. The species are *T. harziaum, T. viride, T. koningii, T. asperrelum,* and *T. parareesei*. The morphological study as pigmentation, colony growth and anatomical studies such as, conidiation appearances, size of conidia, conidiophores branching pattern, shapes of phialides, absent or present of chlamydiophores were carried out to identify the species of *Trichoderma*. The *Trchoderma harzianum* species were abundant in soil while *T. viren* was the second highest in the soil. All species showed the antagonistic activity against *Fusarium oxysporum*. While, *T. parareesei* showed the highest antagonistic 91.10 % activity against *F. oxysporum*, reported as best antagonism agent for phytopathogen.

KEYWORDS: Antagonistic activity. Diversity. *Fusarium oxysporum*. *Trichoderma.*

INTRODUCTION

Fungi play the important roles in ecosystem and economic for development in nature. Decomposer for soil or disease causing in plant or animal fungi have numerous effect in both sectors. One of the most diverse groups of organisms on Earth is kingdom fungi because they are integral ecosystem agents that cycle soil carbon cycling and plant nutrition. Most of the fungi are entirely multicellular, heterotrophic and known as decomposers of nutrients (VERMA, 2012). *Trichoderma* is the genus of fungus that are economical important fungus as for decomposer in soil, celluloses or hemicellualases enzyme production for industrial, antibiotic production or act as biocontrol agent (SEKHAR et al., 2017). *Trichoderma* is soil borne fungus thus ubiquitous in all agricultural soil. As soil received the plant and animal residues, the soil microorganisms start to decompose the material. *Trichoderma* basically role as decomposer for cellulose, hemicellulose and chitin, however, the fungus also paly symbionts with plant and parasitic to other fungi (HARMAN, 2004). During the symbiotic situation, *Trichoderma* act as enhancer in plant in different sectors. Plant received advantages from *Trichoderma*, a) act as security that means protect plant form pathogenic fungi by direct encounter as *Trichoderma* grow towards the pathogenic fungus then coil around the it and kill the fungus or hydrolyse the fungus hypha (HARMAN et al., 2004), b) in direct protection *Trichoderma* induced systemic resistance in plant, (HARMAN et al., 2004), and c) *Trichoderma* stay in root niche, the typical hyphal extension of *Trichoderma* tiger or stimulates the roots growth and bunches (HARMAN et al., 2004, NAHER et al., 2011). With this agreement found in oil palm plant which roots bunches were expand when oil palm treated with *Trichoderma harziaum* mulch compare to control plant (NAHER et al., 2012, 2014). LEE et al. (2016) reported that *Trichoderma* species produced volatile organic compounds in conjunction to enhance plant growth. In their study they found that Tomato biomass increased >99%, plant length and lateral roots also increased in corporation with *Trichoderma viride* treatment (LEE et al., 2016). Other than that, the presence of *Trichoderma* species in soil act as pesticides to kill the larvae and nematode in the soil. *Trichoderma* species penetrate the nematode body by forming haustoria like structure and colonize internally causing the death of nematodes (ZAIDI; SINGH, 2013). The role as fungicide the fungus control many phytopathogenic fungi of *Rhizoctonia solani* in potato plant, *Ganoderma boninense* in oil palm seedlings, *Fusarium oxysporum* in banana plant (NAHER et al., 2014; RAHMAN et al., 2014; ZHANG et al., 2014;). The role of *Trichoderma* as biofungicides and biofertilizer depends on the effectiveness of *Trichoderma* species. Thus, the isolation of *Trichoderma* species diversity is very importance. Hence, this research was conducted to identify the *Trichoderma* diversity in various rhizosphere soil to

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SOURCES OF POTASSIUM IN THE FERTILIZATION OF AGATA POTATO

FONTES DE POTÁSSIO NA FERTILIZAÇÃO DA BATATA ÁGATA

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ABSTRACT: The potato plant presents extraordinary productive capacity, being the fertilization one of the essential factors to optimize the cultivars potential. Potassium (K), the nutrient most absorbed and transported by the crop, interferes with the productivity and tubers quality. Despite many efforts to improve the general and nutritional management of the crop, information as K source and its parceling are still not well elucidated, generating doubts to the producers regarding the decision making. The aim of this study was to evaluate the development, productivity and potatoes quality in relation to sources and proportions of potassic fertilization and its subdivision. The field experiment were conducted with the Agate variety, in the municipalities of Ibicoara - BA and São Gotardo - MG. The design was in randomized blocks, in factorial 6X2, with four replications. The treatments consisted of the combination of potassium chloride and double sulfate of potassium and magnesium (100% KCl; 87.5% KCl + 12.5% $K_2SO_4.2MgSO_4$; 75% KCl + 25% $K_2SO_4.2MgSO_4$; 50% KCl + 50% $K_2SO_4.2MgSO_4$; 25% KCl + 75% $K_2SO_4.2MgSO_4$ and 100% $K_2SO_4.2MgSO_4$) of the potassium recommended amount (100% at planting or 50% at planting and 50% at the beginning of tuberization). The proportion of potassium fertilizer sources in São Gotardo-MG does not affect the vegetative development at 60 days after planting (DAP) and potato productivity. In Ibicoara-BA, plants fertilized with 100% KCl reduced the amount of discarded tubers and presented aerial dry mass (MSA) accumulation 41% higher than the application of 50% KCl and 50% $K_2SO_4.2MgSO_4$. The K subdivision is favorable to special tuber classes in São Gotardo-MG and reduces the class Discard in Ibicoara-BA. Most of the proportions between $K_2SO_4.2MgSO_4$ and KCl did not differ from the exclusive use of KCl for the quantitative parameters. On the other hand, qualitative factors such as starch and soluble solids are related to the application of 100% of K via $K_2SO_4.2MgSO_4$ in installments.

KEYWORDS: *Solanum tuberosum.* Double potassium and magnesium sulfate. Potassium chloride.

INTRODUCTION

Potato (*Solanum tuberosum* L.) is the vegetable-growing with the largest cultivated area in Brazil (TÖFOLI et al., 2013). It is an important source of bioactive compounds, as it has a high index of phenolic acids, anthocyanins and carotenoids (EZEQUIEL et al., 2013). The ingestion of these phytochemicals is related to the prevention of chronic diseases, inflammations and diabetes (ACOSTA-ESTRADA et al., 2014), which increases the interest of the research of this culture in order to meet the demand of a population concerned about health food.

Most of the Brazilian potato production is destined for in natura consumption, with the Agate cultivar being widely produced in several states of the country. Among the management factors that potentiate the crop results, the fertilization contributes in a decisive way to increase productivity and quality. It is essential to understand the process and specificities of the potato production chain, because, despite the relatively short cycle; the potato presents a high nutrients requirement needing to be available in the soil solution (FERNANDES; SORATTO, 2012).

Well-nourished plants are able to withstand stress conditions, both biotic and abiotic. Potassium (K) is the nutrient most absorbed by the potato. K is also related to several biochemical and physiological processes that influence growth and metabolism (WANG et al., 2014), release of energy molecules for plant defense (DEMIDCHIK, 2014) and signaling that mediates several adaptive responses of plants to the environment (ANSCHÜTZ, 2014). The tubers export large amounts of K, reaching 1.8 times higher than N and 10 times higher than P, with variations between cultivars and availability of nutrients in the soil (FERNANDES; SORATTO, 2012).

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