



SCAN ME



Volume 27

Number 27 – 2019

ISSN: 0104-5431; E-ISSN: 2674-6891

SOUTHERN BRAZILIAN JOURNAL OF CHEMISTRY

International Cataloging Data on Publication (CIP)

SOUTHERN BRAZILIAN JOURNAL OF CHEMISTRY: órgão de divulgação científica e informativa [recurso eletrônico] / SOUTHERN BRAZILIAN JOURNAL OF CHEMISTRY – Vol. 25, n. 25 (Dec. 2017)- . – Porto Alegre: Grupo Tchê Química, 2017 - Anual.

Sistema requerido: Adobe Acrobat Reader.

Modo de acesso: World Wide Web:

<<http://www.sbjchem.com>>

Descrição baseada em: Vol. 25, n. 25 (Dec. 2017).

ISSN 0104-5431

1. Química. I. SOUTHERN BRAZILIAN JOURNAL OF CHEMISTRY.

CDD 500

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ISSN: 0104-5431; E-ISSN: 2674-6891

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SOUTHERN BRAZILIAN JOURNAL OF CHEMISTRY

ISSN - 0104-5431 (Printed)
Eletronic ISSN: 2674-6891

Available at

<http://www.sbjchem.com>

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INVESTIGATION OF PHOSPHATE-ION RETENTION STRENGTH IN SOME TYPES OF KAKHETI SOILS

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ABSTRACT

The presented article describes the soil types existing in east Georgia, particularly in several villages of Gurjaani Municipality-Vazisubani, Kalaure, Mukuzani, Shashiani. Meadow-brown and brown soils represent good soil types for viticulture development in Kakheti. The vineyards cultivated on these soils produce such well-known wines as Tsinandali, Vazisubani, Mukuzani, Akhasheni, Gurjaani, Manavi. The study explores brown carbonate and meadow-brown soil lab tests to examine the absorption of phosphate ions by them. The study showed that the amount of phosphorus deposited through soils is sufficiently absorbed under various conditions, having a positive effect on the amount of crop. Was compared the rates of phosphate absorption in these soils with the efficiency of phosphorus fertilizers, which showed that the higher the absorption of phosphorus, the lower the amount of phosphorus available to the plant and the lower the yield, and the lower the strength of phosphorus retention, the higher the amount of phosphorus to be consumed by the plant and the higher the yield. But under the conditions of high cultivation degree, the strength of phosphorus absorption became weak, resulted in a large amount of exchangeable and movable phosphates already existing in the soil, which is available to the plant. So, the efficacy of phosphorus fertilizers on such soil is weak. The speed of phosphorus absorption in the soil of Gurjaani municipality villages is satisfactory. However, in case of a high degree of cultivation (or in case of excess fertilization), the degree of phosphorus retention decreases. Accordingly, phosphorus-containing fertilizers should be used within strictly controlled limits.

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BUNCH NUMBER AND ANTIOXIDANT ACTIVITY IN 'SAHEBI' AND 'HALAGHO' GRAPES AFFECTED BY PRUNING INTENSITY AND CANE LENGTH

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ABSTRACT

Pruning methods can primarily affect grape production at various levels. Of the commonly affected features by pruning, the number of bunches has known to have a significant effect on the relation between the functions of assimilate sources and sinks. Further, fruitfulness can significantly be negatively influenced by shading. In this study, we aim to study the impact of 4, 6 and 8 buds per cane with pruning intensity as light, moderate and severely pruned and their interaction in the course two consecutive years, 2017 and 2018 in 'Sahebi' and 'Halagho' (both seeded red table grape cultivars). In 2018, lightly pruned 'Halagho' and having 8 buds per cane increased number of bunches by 54.00, which had the highest value. Results showed that there is apical buds bear more fruit by comparison to the buds with vegetative nature, 1 to 4 first buds. Based upon the outcomes of this study, it could be concluded that due to the stresses imposed by the pruning of the vines, therefore, the chemical compounds increases in order alleviate the negative aftermaths. In 2018, whole berry antioxidant activity in both cultivars was significantly lessened, and this decline was higher in 'Sahebi'. The number of bunches was increased by increasing cane length or bud load/cane. Overall, the pruning program has an impactful role in bunch number as well as antioxidant activity and in the long-run on accumulated reserves, which makes choosing and applying a specific pruning method undeniably important. Thus, emphasize the importance of further research in this field.

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INDICATORS OF TRYPSIN-LIKE ACTIVITY OF MIXED SALIVA AFTER INSTALLING THE ENDOSSEOUS IMPLANTS IN THE PRESENCE OF GASTRIC ULCER AND DUODENAL ULCER

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ABSTRACT

The trypsin-like activity of mixed saliva in orthopedic patients after implant placement was monitored. Proved negative impact on the processes of repair of background somatic pathology (peptic ulcers and 12 duodenal ulcers), justify the application of immunomodulator "Erbisol" as a drug that speeds up the repair processes during implantation. At present, the relevant issues are those related to the development of inflammatory complications at the stage of rehabilitation of patients, especially in the presence of somatic pathology and the study of the tissue complex of the implantation zone. Peptic ulcer disease occupies one of the main places in the structure of lesions of the digestive system. The close interdependence between the pathology of internal organs and the oral cavity is confirmed by numerous observations and studies. Implant placement is accompanied by changes in the enzymatic activity of mixed saliva. The presence of somatic pathology (ulcerative disease of the stomach and 12 duodenal ulcers) often leads to more long-term violations of the enzymatic activity of saliva. The use of the drug "Erbisol" in orthopedic dentistry accelerates the repair process, as evidenced by the earlier periods of normalization of the enzymatic activity of mixed saliva, after the installation of implants. Regular and timely monitoring of the condition of the periarticular tissues, as well as objective diagnosis of early inflammatory complications, are necessary to ensure the reliability and long-term functioning of prosthetic structures installed on implants in the oral cavity. It can be concluded that the purpose of our study was to study the trypsin-like activity (TPA) of mixed saliva after implant placement on the background of somatic pathology..

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NIOBIUM ALLOY STEEL APPLIED IN COLD FORMING MANUFACTURE

MAIA, Bruno Inácio¹; FUTAMI, André Hideto¹; DE OLIVEIRA, Marco Aurélio¹; DALLA VALENTINA, Luiz Veriano Oliveira¹

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ABSTRACT

Niobium alloy steels are still little known and debated when applied to the metallurgy industry, including cold forming process. It is not much clear about its characteristics and your mechanical performance when compared to traditional steels, which the market already uses. The possibility of input new materials, reducing costs and generating competitiveness is the basis for researches that can generate new opportunities for industries. In this article, we showed the possibility of withdrawing the heat treatment process, which guided the execution of the tests presented here. This paper deals with the performance comparison of SAE 1312 MOD steel compared to ISO 898-1, which deals with mechanical performance for bolts. The tests were correlated with the bolts of 8.8 resistance class, which currently have heat treatment. It is possible to evaluate the positive performance of the niobium-alloyed steel (SAE 1312 MOD), despite the occasional performance limitations in some attributes addressed in ISO 898-1.

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PRODUCTION OF BIOPLASTIC FROM POTATO STARCH

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ABSTRACT

Due to their diverse properties, plastic materials are used in numerous sectors. It is possible to produce different articles and plastic objects with reduced costs, being more accessible to the population. Conventional plastics are obtained from petroleum-derived raw materials, a non-renewable resource in which their extraction and refining process cause major environmental impacts. The production of plastic reaches a level of approximately one hundred and forty million tons per year, and the disposal of these materials is increasing, generating a high rate of waste and leading to an increase of pollution since the decomposition of these materials lasts about five hundred years old. Conventional plastics can be replaced by bioplastics, a material obtained from renewable raw materials such as potatoes, cassava, maize, and which, when disposed of under favorable conditions, decomposes faster, as during its degradation process at least one step occurs. Through the metabolism of organisms present in the environment. Starch has been widely used in the production of biodegradable packaging, so the objective of this work was to produce a biodegradable bioplastic from the potato starch. Potato starch, glycerin, hydrogen peroxide, distilled water, and commercial agar were used to produce the bioplastic. Bench-scale bioplastics had good organoleptic characteristics, similar in appearance to a conventional plastic obtained from petroleum. The thickness, moisture content, and solubility of the bioplastics were analyzed, as well as their fruit preservation capacity. The samples produced were rigid and with good resistance.

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