GUÍA PARA LA PRESENTACIÓN DEL

EXAMEN DE ACREDITACIÓN

DEL REQUISITO DE COMPRENSIÓN DE

ARTÍCULOS TÉCNICO-CIENTIFICOS

EN EL IDIOMA INGLÉS PARA LA

OBTENCIÓN DEL TÍTULO

PROFESIONAL.

**R**ecuerda que no existe una fórmula mágica que garantice la acreditación del examen, pero algunos puntos que te ayudaran, es el estar bien informado sobre este proceso y conocer algunos *tips* para un mejor desempeño:

**Se sugiere:**

* Tener conocimientos básicos de inglés.
* Tener práctica en lecturas en el idioma inglés, enfocadas a tu área de especialidad.
* Familiarizarte con verbos y vocabulario de diversos temas actuales (enfocado a tu carrera)
* Ensayar con exámenes prototipo disponibles en el Centro de Idiomas, probando diferentes estrategias de solución al examen, para identificar la que te resulte mejor de manera personal.
* Prepararte con tiempo, para que incrementes tus habilidades.

**REQUISITOS PARA TENER DERECHO A LA PRESENTACIÓN DEL EXAMEN**

1. Se recomienda haber aprobado un mínimo del 50% de los créditos de la carrera.
2. Haber entregado recibo de pago, solicitud del examen y copia en el Centro de Idiomas (ubicado en el Edif. “Raúl Martínez Cruz”), por lo menos una semana antes de la fecha de la aplicación del examen.
3. Presentarse puntualmente al examen en la fecha publicada previamente. *(Por ningún motivo se aplicará extemporáneamente)*
4. Identificarse al entrar al salón, presentando su credencial de elector o credencial del último semestre cursado del Instituto Tecnológico del cual provenga. *(Si quien se presenta el día del examen no es claramente identificado, no tiene derecho a presentar examen).* Adicionalmente un profesor de tu carrera te identificará personalmente.
5. Traer lapicero tinta negra o azul, lápiz, goma y sacapuntas.
6. No usar celulares, Tablets, etc., durante el examen.
7. No usar ningún material de consulta, durante el examen.
8. No salir del aula, una vez iniciado el examen.

**PROCEDIMIENTO PARA REALIZAR TU EXAMEN**

El tiempo para la aplicación del examen es de **dos horas** por lo que se te **sugiere** lo siguiente:

1. Al recibir el examen, deberás **ESCRIBIR** tu nombre, así como F**IRMAR**, en los espacios correspondientes, utilizando lapicero de tinta negra o azul.
2. Leer el correspondiente artículo técnico-científico redactado en inglés, que deberá tener un mínimo de 800 y un máximo de 1200 palabras.
3. **DAR RESPUESTA** a un conjunto de **10 reactivos** de opción múltiple, redactados en inglés. Cada reactivo tiene 3 opciones, de las cuáles, la que conteste mejor, de acuerdo al artículo leído, será la única correcta. Las opciones restantes serán incorrectas. Las respuestas deben señalarse claramente, utilizando lapicero tinta negra o azul. Si algún reactivo no tiene la respuesta claramente marcada con lapicero, o están marcadas más de una, dicho reactivo será tomado como incorrecto. La parte de reactivos tiene un valor de ***60/100.***
4. **ELABORAR** el resumen en español con una extensión mínima de una cuartilla (26 renglones), con un valor de ***30/100*** en el cual deberás tomar en cuenta los siguientes aspectos:

* Incluir todas las ideas principales esto con el fin de que no dejes fuera de tu resumen las ideas más importantes del artículo.
* Tener precisión de ideas. Para evaluar la exactitud con que expresas las ideas del resumen, con respecto a lo que expresa el autor del artículo.
* Redacción propia. En él se evalúa que el resumen tenga tu estilo propio de redacción, pero que no incluyas tus opiniones personales, ni hagas una simple traducción de lo leído. Debes demostrar que entendiste el artículo, identificando los aspectos más importantes del mismo y resumiéndolo con tus propias palabras.
* Ilación de ideas. En él se evalúa la relación entre las ideas expresadas. Es decir, una idea debe guardar relación con la que le sigue. Debe haber una secuencia lógica de ideas a lo largo del resumen. Si solo hay ideas aisladas, este aspecto no se cumple.

El orden de los pasos puede cambiar, de acuerdo a lo que tú creas que te da más probabilidades de un mejor resultado.

**EVALUACIÓN Y CALIFICACIÓN DEL EXAMEN.**

* La **evaluación** del examen estará a cargo de un jurado, compuesto por 2 sinodales, un sinodal del Centro de Idiomas y un sinodal asignado de tu academia que cuente con conocimientos de Inglés.
* El **tiempo** para entregar **resultados** será de un máximo de 5 días hábiles posteriores a la fecha de aplicación.
* Se le entregará al solicitante **hoja de resultados**, en la cual constará su calificación *APROBATORIA (mínima de 70%)* o *NO APROBATORIA,* además el jurado anotara las observaciones del porqué del resultado*.* Mismas que ayudaran al alumno no acreditado a conocer los aspectos a mejorar para próximas aplicaciones.
* La **calificación** correspondiente **se asentará en acta firmada por ambos, y será inapelable, de acuerdo al artículo 1.2.6.7 del manual de procedimientos** para la acreditación del requisito de comprensión de artículos técnico-científicos en el idioma inglés, para la obtención del título profesional.

**Mutagenic effects of sodium azide on pineapple**

Pineapple is the main commercial species of the Bromeliaceous globally. Fruit production in pineapple reached 25.4 million tons in 2013 but to maintain and/ or improve the quality of pineapple production in many parts of the world, researchers are now developing new varieties. Given that pineapple breeding through conventional techniques is extremely costly, biotechnological approaches provide great potential for improving selected clones more affordably.

**Materials and methods**

Plant material, in vitro methods and growth measurements Field-grown pineapple plants served as the source of explants for initiating in vitro cultured buds. These axillary buds, excised after removal of the crown leaves, were decontaminated followed by rinsing with tap water. The buds were excised with a portion of basal tissue and established in 300 ml glass containers with 5 ml of liquid culture medium per explant. The shoots were subcultured and multiplied for 6 months, at 45-d intervals, and then placed in TIBs with 3.0 μM paclobutrazol. Immersions (2 min in duration) occurred every 3 h for 30 d. Free shoots were located in the bottom of glass vessels (300 mL volume) filled with 200 mL of liquid medium with 5 explants within each of three containers per treatment (40 mL medium / explant). At the beginning of the 30-d-long subculture, different levels of NaN3 were supplemented in the culture medium. Culture conditions were as follows: 25±1 oC and 80 μmol m-2 s-1 cool fluorescent light for an 8 h photoperiod. Shoot multiplication rate, shoot cluster fresh weight and all biochemical parameters described below were measured after 30 d of culture. Biochemical parameters plant tissues were sampled from each of three bioreactors, chlorophylls, malondialdehyde and other aldehydes after Heath and Packer. For chlorophyll pigments, the tissue was extracted in 5.0 ml acetone and the subsequent supernatants read for absorbance at 646.6 and 663.6 nm using a spectrophotometer. Similarly, carotenoids levels were measured by reading the absorbance of acetone extracts at 470 nm. Phenolic compounds were extracted and quantified using a colorimetric assay, which involves the reaction of phenols with Folin Ciocalteu reagent. The reaction of malondialdehyde and other aldehydes with thiobarbituric acid formed the basis of the colorimetric method used to quantify the products of lipid peroxidation. Phenolic exudation was quantified using a modification of the Hoagland procedure. This involved mixing the culture medium with 4.5 ml distilled water, after which 0.5 ml Folin Ciocalteau reagent was added. This mixture was shaken and then left to stand for 5 min before saturated sodium carbonate (1 mL) was added. The mixture was then shaken again, left to stand for 60 min, and then read for absorbance at 725 nm. Phenolic concentration was calculated based on a Gallic acid standard curve.

**Statistical analysis**

Results Exposure to NaN3 decreased pineapple shoot multiplication rate and fresh weight in a concentration-dependent manner at the maximum concentration (0.45 mM) shoot multiplication rate was 12.65% of that obtained in the control, while fresh weight was reduced by 66.42% relative to the control. Despite this reduction in growth and multiplication rate, shoot production was observed across all NaN3 treatment concentrations and the shoots displayed no morphological abnormalities when compared to the control. It should also be noted that the inhibitory effects of increasing NaN3 concentration were more severe on shoot multiplication rate than cluster fresh weight. In terms of plant pigment contents, NaN3 decreased chlorophyll levels at the maximum concentration and chlorophyll b at the two highest concentrations, relative to the control. In contrast, NaN3 increased carotenoid levels, compared with the control, at all concentrations tested. OCV values were, however, Low (13.65-24.13%) across all three plant Effects of sodium azide on pineapple 3 regard, chemical mutagens are now useful tools in crop improvement and have been used to produce abiotic stress tolerance and disease resistance in various susceptible crops, improving their yield and quality traits. There are several mutagens available for crop improvement and like NaN3, the mutagen investigated here, each has its own positive or negative effect on plants. Mutagenesis has been employed to introduce many useful traits, including plant size, fruit ripening and resistance to pathogens in a wide range of fruit crops. However, studies on the effects of chemical mutagens on pineapple are scarce, while no published reports on the effects of NaN3 on the in vitro growth and biochemistry of pineapple explants were available at the time of this study. NaN3 has been reported to have similar inhibitory effects on in vitro explant growth in other species, however, at 0.19 mM NaN3, the multiplication rate in the TIBs used was lower than the control but still higher to that achieved for pineapple grown in the absence of NaN3 using conventional culture methods. Furthermore the propagants generated displayed no morphological abnormalities, when compared to the control. Sodium azide did, however, induce significant changes in a number of biochemical parameters relative to the control. Most plants grown in vitro have a different metabolism than in vivo. In the former, they are provided with a carbon source, growth regulators, high humidity, and less carbon dioxide and light, which promote proliferation but also change the autotrophic metabolism to heterotrophic or mixotrophic. Once transferred to the ex vitro environment, micro propagated plantlets must then adapt their metabolism to the new conditions, which can represent a significant stress. The biochemical profile of micro propagated plantlets can therefore influence, either negatively or positively, their survival and performance during acclimatization and subsequent ex vitro growth. In the present study while in vitro exposure to NaN3 decreased chlorophyll levels in pineapple shoots, it increased carotenoid levels. Carotenoids are important components of the antioxidant system in photosynthetic organisms and their absence can increase the extent of photo inhibition. Both the decreased chlorophyll and increased carotenoid levels suggest that NaN3 exposure may reflect a NaN3-stress-related photosynthetic down-regulation : Effects of sodium azide exposure on pineapple micro propagation in temporary immersion bioreactors. Values represent means ± SE (n=3) and are significantly different when labelled with different letters. Overall coefficient of variation (OCV) = (Standard deviation/ Average)\*100. To calculate this coefficient, the four average values were considered. The higher the difference among results, the higher is the overall coefficient of variation: Low = 2.94 to 30.00%, Medium = 30.00 to 57.06% and High = 57.06 to 84.12%. Effects of sodium azide exposure on pineapple micro propagation in temporary immersion bioreactors. Increased carotenoid-based photo protection is a commonly reported stress response. This may have in turn decreased the potential for photo oxidation, which can arise as a consequence of stress induced damage to the photosynthetic machinery. This suggestion is supported by the fact that NaN3 exposure did not result an increase in malondialdehyde and other aldehyde levels which are common products of cellular damage caused by photo oxidative stress.

Under normal growth conditions, basal levels of aldehydes remain low in plant tissues but with exposure to abiotic stress they can accumulate to much higher levels. Stress-induced aldehydes can act as generic signal molecules for plants under adverse environmental conditions, inhibiting developmental and metabolic processes, for example, showed that the accumulation of aldehydes can inhibit shoot growth. Phenolic compounds are some of the most common products of secondary metabolism in plants and some are essential for plant survival, given their involvement in defense mechanisms under stress situations. The regulation of the biosynthesis of phenolic is generally brought about by biotic and abiotic stimuli and generally accumulate in plant tissues during a stress. In the present study, though NaN3 exposure induced a reduction in growth, an unambiguous indication of stress, it did not increase phenolic levels in shoot tissues and or the culture medium. This is encouraging, since cell wall-linked or insoluble phenolic, in particular, can make cell walls more rigid and less porous inhibiting nutrient uptake and growth. Their accumulation in vitro cultures is therefore not beneficial for growth. The results suggest that though NaN3 decreased pineapple shoot multiplication rate within TIBs, propagants displayed no morphologically abnormalities, and when produced using 0.19 mM NaN3 exhibited enhanced levels photo protective pigments and no obvious signs of enhanced lipid peroxidation. The mutagen can therefore be used at this concentration to induce pineapple mutagenesis in TIB based studies aimed at producing agriculturally-useful mutants.

**TEST QUESTIONNAIRE FOR MUTAGENIC EFFECTS OF SODIUM AZIDE ON PINEAPPLE**

**CHOOSE THE CORRECT OPTION THAT COMPLETES OR ANSWERS THE QUESTION.**

1. Why are researchers developing new varieties of pineapples?
2. Improve the quality of pineapples.
3. Conventional techniques are extremely costly.
4. All of the above.
5. None of the above.
6. The buds were excised with a portion of basal tissue and established in glass container with of liquid culture medium per explant.
7. 300 ml/ 200 ml
8. 300 ml/ 5ml
9. 300 ml/ 40 ml
10. What are the three bioreactors that were sampled from plant tissues?
11. chlorophylls, malondialdehyde and aldehydes
12. chlorophylls, health and packer
13. malondialdehyde, aldehydes and health
14. How were the phenolic compounds quantified?
15. using a spectrophotometer
16. using a modification of the hoagland procedure
17. using a colorimetric assay
18. Some of the benefits of mutagenesis are:
19. plant size, fruit ripening and resistance to pathogens in a wide range of fruit crops
20. cheap, fruit ripening and disease resistance in various susceptible crops
21. abiotic stress tolerance, fruit ripening and resistance to pathogens in a wide range of fruit crops and plant size
22. none of the above
23. Most plants grown in vitro have the same metabolism than in vivo.
24. True
25. False
26. No information
27. Who´s absence can increase the extent of photo inhibition?
28. Carotenoids
29. Mixotrophic
30. Sodium azide
31. All of the above
32. Which are the most common products of secondary metabolism in plants?
33. Phenolic exudations
34. Phenolic compounds
35. Phenolic levels
36. What caused the cellular damage?
37. photo oxidative stress
38. abiotic stress
39. photo protective pigments
40. photo oxidation
41. The regulation of the biosynthesis of phenolic is generally brought about by biotic and abiotic stimuli?
42. True
43. False
44. No information

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