Break of dormancy and evaluation of the germination rate of the cerrado medicinal species: *Eriosema pycnanthum*

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Abstract

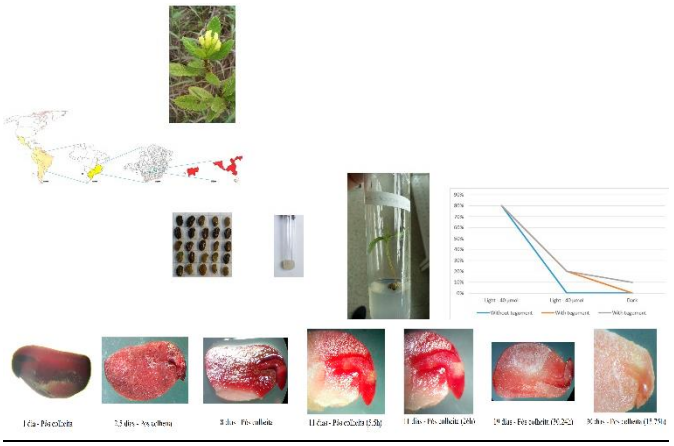
Statement of the problem: Eriosema (DC) Desv. is a genre present in Africa and the Americas. 30 species In Brazil are found, 19 of which are Cerrado species, such as *E. pycnanthum*. This species is a subcultural leguminous found in soils of the Iron Quadrangle of Minas Gerais and in the region of Itapecerica, where it is as natural cicatrizant. Althoug it is used in traditional medicine, there are no studies aimed the germinative effectiveness *in vitro* of this species. Methodology and theoretical orientation: The seeds obtained in the field were disinfested with hydroaalcoholic solution (70%-1') followed by hypochlorite (1%-15') and then treated in KNO_3 (2%). The variables of number of groups, time in KNO_3, time at storage were defined by analysis of variables by statistical software SISVAR (Ferreira, 2011). As seeds were inoculated with or without the integument in tubes with MS medium supplemented with 30g/L of sucrose and solidified with 6g/L of agar at pH 5.7 ± 0.1. It was evaluated if light (40µmol, 45 daysl in a 16-hour photoperiod affect the germination. Tetrazolium Bromide (1%) was used as a marker of the electron transport chain. Results: Seeds with tegument for 24 hours germinated after 18th day. In the dark, the germination rate was 10%, while in a light it was 20%. The removal of tegument, immersion in KNO_3 exposure to light geminated on the 18th. It was observed 80% of the germinated ot the 60th days (Table 1). Contamination and oxidation was not observed. Conclusion and Meaning: *E. pycnanthum* presents integumentary dormancy. 2%KNO_3 provide the germination promotion of *E. pycnanthum* seeds in a time dependent manner. Tetrazolium Bromide showed a decrease in seed respiration efficiency in relation to storage time (Figure 1).

Table 1: Germination of *E. pycnanthum* with KNO_3 - 2%.

Collection time (Days)	2,5	5	5	11	11	11	17	17	19
Fear Kno_3 (Min)	10	16	3	19	0,6	10	16	3	10
Germination (%)	100	100	100	50	50	62,5	100	100	100

Image

Figure 1: Schema of germination of *E. pycnanthum* with KNO_3 - 2% and exposition in tetrazolium bromide.



Recent Publications (minimum 5)

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3. Woodley DT, Wysong A, Declerck B, Chen M, Li W (2015) Keratinocyte migration and a hypothetical new role for extracellular heat shock protein 90 alpha in orchestrating skin wound healing. Advances in wound care. 4:203-212.
4. Cândido ES, Fortuna-Perez AP, Filho JL, Bezerra LMPA (2014) *Eriosema (Leguminosae-Papilionoideae)* in Southeastern Brazil. Rodriguésia. 65:885-916.
5. Antwerkwerker EA, Hom DB (2011) Skin: histology and physiology of wound healing. Facial plastic surgery clinics of North America. 19:441-453.



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Notes/Comments:

Quebra de dormência e avaliação da taxa germinativa da espécie medicinal do cerrado: *Eriosema pycnanthum*.

Statement of the Problem: *Eriosema* (DC) Desv. é um gênero presente na África e Américas. No Brasil são encontradas 30 espécies sendo, 19 delas presentes no Cerrado, como *E. pycnanthum*. Esta espécie é uma leguminosa subarbustiva encontrada em solos ricos em canga do Quadrilátero Ferrífero de Minas Gerais e na região de Itapecerica onde é utilizada como cicatrizante natural. Apesar de sua utilização na medicina tradicional não existem trabalhos direcionados a quantificação e eficiênciencia germinativa in vitro desta espécie. Methodology & Theoretical Orientation: Sementes do campo foram desinfestadas com álcool - 1min e hipoclorito 1% - 15min. Os tratamentos envolveram, imersão ou não em solução de KNO_3 - 2% e as variáveis de número de grupos, número de sementes, tempo em KNO_3, e tempo de armazenamento foram determinadas por análise com o software estatístico SISVAR (Ferreira, 2011). As sementes foram inoculadas com e sem o tegumento em tubos contendo meio MS suplementado com 30g/L de sacarose e solidificado com 6g/L de àgar em pH 5,7 ± 0,1 além de fotoperíodo de 16 horas e densidade de fótons de 40 umol por até 45 dias. O Brometo de Tetrazolium a 1% foi utilizado como marcador da cadeia de transporte de elétrons. Sementes com tegumento e sem KNO_3 não germinaram. As sementes com tegumento tratadas com KNO_3 por até 24horas iniciaram sua germinação a partir do 18º dia após inoculação. Em escuro a taxa de germinação foi de 10%, enquanto na luz foi de 20%. A exposição à luz junto a retirada do tegumento promoveram uma germinação já no 8º dia, alcançando eficiência total de 80%. Não foram observadas contaminações e oxidações. Conclusion & Significance: *E. pycnanthum* apresenta dormência tegumentar. O KNO_3 – 2% auxilia na promoção germinativa das sementes de *E. pycnanthum*, de forma tempo dependente. O tetrazolium mostrou baixa respiratória das sementes de acordo ao tempo de armazenagem.