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Abstracts

eucalipto. O experimento foi conduzido em povoamento de Eucalyptus urograndis cultivado em Latossolo Vermelho argiloso. Os tratamentos foram: controle (C), ureia (U) e ureia com DCD (U-DCD), aplicados 10 e 120 dias após plantio (DAP), correspondendo à adubação de base (13 kg N ha^{-1}) e cobertura (33 kg N ha^{-1}), respectivamente. O fluxo de N_2O foi avaliado durante 247 dias pelo método da câmara estática fechada. O fluxo de N_2O do solo variou de 1,5 a 1030,8 µg N m^{-2} h^{-1}, com picos concentrados entre 15 e 65 DAP, seguidos de valores basais até o final do período de avaliação. A emissão acumulada (EA) de N_2O do solo do tratamento C, U e U-DCD foi de 2,93, 5,53 e 3,29 kg N ha^{-1}, respectivamente. No entanto, embora a U apresente EA duas vezes maior que o controle e que a U-DCD tenha reduzido a emissão de N_2O do solo fertilizado com U em 40,5%, os tratamentos não apresentaram diferença significativa entre si, possivelmente devido ao elevado coeficiente de variação entre as repetições (3). Neste sentido, conclui-se que o inibidor de nitrificação dicianodiamida não foi eficiente em reduzir a emissão de N_2O do solo nas condições edafoclimáticas deste estudo.

Nitrous oxide emissions in an area of mixed *eucalyptus* and *acacia* plantations in Northern Mato Grosso, Brazil / *Emissões de óxido nitroso em área de plantio misto de eucalipto e acácia no norte Mato-grossense*

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O eucalipto é a espécie florestal mais plantada no Brasil e para explorar seu máximo potencial produtivo, é necessária a reposição de nutrientes, sobretudo nitrogênio (N), principal fonte de emissão de óxido nitroso (N2O). Plantios mistos de eucalipto com leguminosas arbóreas fixadoras de nitrogênio, surge como uma alternativa sustentável de fornecer N e reduzir as emissões de N2O. O objetivo do estudo foi avaliar o efeito do plantio misto de Eucalyptus urograndis (*E. urophylla* x *E. grandis*) e Acacia mangium na redução das emissões de N2O. Foi realizado na Embrapa Agrossilvipastoril, Sinop-MT e foram avaliados cinco tratamentos: monocultivo de eucalipto com fertilização nitrogenada (E+N), sendo aplicado 190 kg ha-1 de ureia; monocultivo de eucalipto sem fertilização nitrogenada (E); monocultivo de acácia (A); plantio misto com 67% eucalipto e 33% acácia (67E:33A); plantio misto com 50% eucalipto e 50% acácia (50E:50A).O delineamento experimental foi blocos casualizados, com três repetições. As coletas foram realizadas em 2016 e 2017, em período de seca e chuva. Foram instaladas câmaras estáticas para coleta de gases e as amostras foram analisadas por cromatografo gasoso. No período seco, os maiores valores de emissões de N2O foram 5,44µg N m-2 h-1, não apresentando diferença significativa entre os tratamentos. No período de chuva, a emissão foi superior à seca e os maiores valores foram no E+N, com emissões de 189,49 µg N m-2 h-1, sendo superior aos demais tratamentos. Plantio misto de eucalipto com acácia tem potencial de mitigação de emissões de N2O, comparado a monocultivos fertilizados com N.

B4t: ESTIMATION OF STATUS AND CHANGE IN FOREST CARBON POOLS BASED ON INVENTORY DATA: GOING BEYOND TREE CARBON

Combretum-Terminalia vegetation accumulates more carbon stocks in the soil than the biomass along the elevation ranges of dryland ecosystem in Southern Ethiopia

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Dryland ecosystems including Combretum-Terminalia vegetation cover a wider area in the tropics. These resources are believed to greatly contribute to climate change mitigation in dryland ecosystems. Therefore, the objective of this study was to investigate biomass and soil carbon stocks of Combretum-Terminalia vegetation along the elevation ranges. A total of 60 nested sample plots of 20 m × 20 m were laid systematically along lower, middle and higher elevation ranges, representing 20 plots for each elevation. Within each nested sample plot of woody species, litter and soil samples (0-15, 15-30 cm layers) were collected. The total carbon stocks (biomass plus soil) significantly ($p < 0.05$) differed among the three studied elevation ranges. The biomass carbon stocks were significantly different between middle and higher elevations but both of them significantly ($p < 0.05$) differed from lower elevation, and also showed a decreasing trend from lower to higher elevations. However, inconsistence trends were observed for organic carbon and litter along the elevation ranges. It was concluded that the woodland ecosystem has a potential to accumulate higher carbon stocks in the soil than the biomass and significantly vary along elevations.

Quantification of soil organic and inorganic carbon stocks in Gambari Forest Reserve, Nigeria

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Soil carbon is the largest carbon pool in the terrestrial biosphere and contains organic carbon and inorganic carbon components. Inorganic carbon has not been considered in estimation of soil carbon stock. Assessment of both carbon components is required to understand the effects of land use on soil carbon stock. Therefore, this study was conducted to quantify organic and inorganic carbon among soil aggregates of selected land use types in Gambari Forest Reserve. Four (30m x 30m) plots were randomly demarcated on each land use; Natural Forest, Plantation Forest and Cultivated Land. Soil core samples were collected to depths of 0-15, 15-30 and 30-45cm in the sub-plots of 8m x 8 m established at four corners and centre of each plot. Soil core samples were oven dried at 1050C to constant weight and 100g of soil sample was sieved into five aggregate sizes (> 2, 2-1, 1-0.5, 0.5-0.05, <0.05mm) and total carbon content was determined by Loss-in-Ignition method at 5000C for 4 hours. Walkley Black mehod was used to determine soil organic carbon and inorganic carbon was computed from each aggregate fractions. Data collected were analyzed using descriptive statistics. Aggregates > 2.0 mm had the highest total carbon content at three depths in Plantation Forest and Cultivated Land while 1.0 mm had the highest carbon content at three depth in Natural Forest. Soil organic and inorganic carbon decreased with increase in soil depths in the three land use type. Land use and aggregates determined the distribution pattern of soil organic and inorganic carbon.