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Recovery of fire-damaged “cerrado” area treated with homeopathic preparations in slow dispersion devices – a descriptive study

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Abstract
Given the seasonal climatic characteristics, forest fires in “cerrado” areas in Central Brazil are common and challenging to prevent. Despite fire being a plant stimulation factor, such as breaking seed dormancy, when it covers large areas or occurs very frequently, it can cause irreparable damage to nature. Prevention is difficult and costly, and there are no corrective action options other than waiting for natural regeneration, which is usually slow and, not infrequently, with permanent damage. Due to its physicochemical qualities acting in biological regulation processes, water has been considered the primary vehicle for propagating signals from homeopathic ingredients, as suggested by previous studies carried out with solvatochromic dyes. Therefore, such inputs could, in theory, be inserted into watercourses to stimulate the regeneration of the biome destroyed by fire. This hypothesis motivated this case study. A slow dispersion device was developed aiming at promoting continuous environmental regeneration, containing hydrocolloid and calcium carbonate as a solid base soaked in a homeopathic complex specifically designed for this purpose, composed of Arnica montana 30 cH, Phosphorus 30 cH, Arsenicum album 30 cH, Staphysagria 30 cH, Ignatia amara 30 cH. The case occurred in Nascentes do Rio Taquari State Park (PENT), between Mato Grosso and Mato Grosso do Sul state, Brazil. It is a “cerrado” area, with multiple springs that feed the Paraguay River, occupying an area of 26,849 hectares over the Guarani and Bauru aquifers. After the fire in early September 2020, the devices were fixed at 9 strategic points in the park (P1 to P9) over 10 days, between September 29 and October 11, 2020, in water courses close to the main springs. The points varied from 400 to 800 m (altitude); all points were covered by native / recovered vegetation, but five were near agricultural fields. Two (P2 and P4) were located less than 400m from a highly vulnerable impact zone for burning. To assess the restoration signs of the post-fire environment, the IMASUL technicians responsible for monitoring the park registered the regrowth occurrence of new and known species of the flora in different locations close to four device-insertion points (P3, P5, P7, P8). Signs of recovery were observed 40 days after the fire was over. A rapid pioneer plant restructuring was noted, with a significant regrowth of grass, herbaceous and shrub species, such as Mutamba (Guazuma ulmifolia), Murici (Byrsonima spp.), Inga (Inga sp.), Brachiaria (Brachiaria sp.), Jaraguá grass (Hyparrhenia rufa), Colonião grass (Panicum maximum), Gabiroba (Campomanesia sp.), and Pixirica (Miconia sp.). Some species, such as Mimosa (Mimosa sp.), Colonião grass (Panicum maximum), and Jaraguá grass (Hyparrhenia rufa), were not detected in the area before the fire, probably by the seed bank stimulation caused by the heat. There was rapid forest regeneration (4
months after the fire) concerning the historical Brazilian forest natural post-fire recovery time [1], whose average for complete restoration is five to ten years, depending on the biome and the damage degree. The restoration of most of the burned trees was also noted, both for resisting the fire and for being free of invasive species highly aggressive to native plants, which were controlled by the action of fire. Concerning the fauna recovery, new bird visual observations were periodically observed, highlighting the appearance of “Tuiuiú” (*Jabiru mycteria*) and “Socô” (*Tigrisoma lineatum*) close to a water body with a waterfall area (P3). Both species belong to the “Pantanal” biome close to the park. Such species began to frequent the park’s lakes, being observed until February 2023 (the last survey date). The park’s inventory of lichens and fungi showed an unusual tolerance to fire in species that adhered to burned trees and remained active. In this way, although there is no clear cause-effect relation in this case report, it is suggested that installing slow dispersion devices in watercourses can contribute to the regeneration of other “cerrado” biome areas subjected to fire, protecting the local biodiversity. More studies of this nature are needed to know the real impact of this method on the recovery of different biomes.

**Keywords:** biome regeneration, ecosystems, forest fire, environmental homeopathy.

**References**


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