Comparative epidemiology of cassava root rot disease

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Cassava root rot (CRRD) is one of the most destructive diseases worldwide and can lead to total crop failure. Symptoms of CRRD are quite variable depending on the causal agent and can be divided into dry, soft, and black rot. In general, dry rot is represented by the appearance of dark brown streaks in the roots with no aqueous aspect, while soft rot is characterized by the darkening of the affected tissues with liquid exudation and is foul-smelling. On the other hand, black rots are characterized by dark lesions (blackened) in the roots and stems and may evolve into a soft rot but without the presence of the unpleasant odor. Since the control of this disease is manly based on genetic resistance and cultural practices, the knowledge about the species diversity, distribution, risk factors and aggressiveness are mandatory to support breeding programs and to turn the disease management most time and cost-effective. Since 2011, different experiments and surveys has been conducted aiming to identify the most prevalent species and the necessary conditions for the disease development. Different genus and species were found associated with this complex, being Fusarium spp., Lasiodiplodia spp. and Phytophthora spp. the most important within the dry, black and soft rot CRRD groups, respectively. The necessary temperature conditions are different among genus, as well, the aggressiveness of the isolates. This differences also occurs regarding the cassava genotype that is affected by each species, including different response of resistance associated with different cassava tissues (leaves, roots and stems). Important information was generated about the conditions necessary for the development of each group within CRRD (dry, black and soft rot), and has been used on the search for resistant cassava genotypes, but additional information are needed since this is pathosystem with high complexity and affects all productions regions in Brazil and worldwide.