Calculating the expression of those genes is enough for over a 60 %-accuracy for disease status determination.

O14.012 Transmission of chestnut yellow crinkle phytoplasma by leafhopper *Parabolopona ishihari* Webb (Homoptera: Cicadellidae)

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Chinese chestnut (*Castanea mollissima* BL.), a deciduous tree native to China, belongs to the family *Fagaceae* and is widely cultivated in eastern Asia. Recently Chinese chestnut trees planted in a suburb of Beijing, China developed symptoms including yellowing, leaf crinkling, little leaf, shortened internodes, and empty burrs. Transmission electron microscopy revealed the presence of phytoplasma cells in phloem sieve elements of the symptomatic chestnut trees. Molecular cloning and sequence analysis of PCR-amplified near-full length 16S rRNA gene indicated that the phytoplasma associated with the Chinese chestnut yellow crinkle (CnYC) disease is closely related to Japanese chestnut witches' -broom phytoplasma. Eleven insect species with piercing-sucking mouthparts were collected in chestnut plantation with symptomatic trees. CnYC phytoplasma was detected in *Parabolopona ishihari* Webb by PCR amplification of 16S rRNA gene using CnYC phytoplasma specific primer pairs. Nymphs and adults of *P. ishihari* Webb collected from chestnut trees infected with phytoplasmas were feed with healthy periwinkle (*Catharanthus roseus*) growing in green house. The symptoms of yellowing, leaf crinkling, little leaf and shorten internodes were observed and the CnYC phytoplasma was also detected by PCR amplification in periwinkles at 30 days post inoculation. These results suggested that CnYC phytoplasma could be transmitted from Chinese chestnut to other plant by *P. ishihari* Webb.

P14.001 Effects of environmental temperature on the corn stunt spiroplasma disease

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The corn stunt spiroplasma (CSS) is caused by *Spiroplasma kunkelii*, transmitted by the leafhopper *Dalbulus maidis*. The objective of this study was to verify the spiroplasma transmission by *D. maidis*, and the development of CSS symptoms in maize, under acclimated chambers and screen-house conditions. The maximum and minimum temperatures (^{0}C) and amplitude, respectively, were: chamber I (27.35; 23.58; 3.76), II (27.22; 18.53; 8.69), III (24.8; 22.33; 2.48), IV (28.4; 23.29; 5.1), screen-house (32.29; 18.33; 12.96). In each condition, 24 spiroplasma-infective, and 6 healthy leafhoppers were confined on maize seedlings, for 6 days (one per seedling). After that, half of these seedlings were cultivated inside the chambers, and the other half was cultivated in the screen-house. More than 80% of the plants submitted to spiroplasma inoculation, and cultivated in the screen-house, showed CSS symptoms, indicating no effect of that temperatures on this pathogen transmission. Some plants without CSS symptoms could be due the death of the infective leafhopper, before spiroplasma transmission. For the maize seedlings submitted to spiroplasma inoculation, and cultivated under the five temperature conditions, only in the chamber II none plant presented CSS symptoms, until 60 days age. These asymptomatic plants were transferred to the screen-house where, in few days, the CSS symptoms appeared, indicating that bland temperature condition can stop the spiroplasma growth in maize.

P14.002 Effect of the corn stunt spiroplasma disease on maize production

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The effect of corn stunt spiroplasma (CSS) on maize development and production was evaluated in the screen-house, with spiroplasma inoculation, and in the field, using one maize cultivar and one popcorn cultivar. In the screen-house 20 seedlings of each cultivar were submitted or not to spiroplasma inoculation, using one spiroplasma-infective or healthy leafhoppers *Dalbulus maidis* confined for six days in each eight-days-seedling. The CSS symptoms were detected on 40% and 60% of the maize and the popcorn cultivar plants that had the development drastically reduced by this disease, in relation to the healthy plants. Each cultivar was sowed in 10 lines (10m each one) in three different areas at Embrapa experiment station, Sete Lagoas, MG, Brazil, and, in each area, 10 plants with and 10 plants without CSS symptoms were marked for grain production evaluation. The averages of the corn stunting diseases symptoms incidence were 21.9%; 24.6%; 15.7% and 65.6%; 77.5%; 74.2% for the maize and the popcorn cultivar, respectively, with CSS symptoms predominance. The periodic insect sampling showed *D. maidis* leafhoppers presence since 15 days after sowing. The averages of CSS reductions on the maize and the popcorn cultivars grain production were, respectively: 84.07%; 75.40%; 76.80%; and 63.17%; 72.62%; 60.66%. These results indicate