Reproductive phenology and factors affecting reproductive success in stevia (*Stevia rebaudiana* Bert.)

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ABSTRACT : Seed production in Stevia is problematic in tropical climate which ultimately increase cultivation cost due to high price of propagating material obtained either through tissue culture or stem cutting. Therefore, a study was undertaken to know the reproductive phenology concentrating on pollination mechanism, pollen viability, pollen and stigma style interactions, pollen tube growth to determine the factors affecting seed setting in stevia. Flowers of stevia are bisexual, white in colour with broom shaped calyx favours easy dispersion. Flower morphology, length between anther and stigma, angle of style with filament as well as the sequence of arrangement of anthers on the filaments and the stigma on the style resembled that stevia favours cross pollination which is entomophillic in nature. Flowers are protandrous with very poor pollen viability. Stigma surface possessed both cuticle as well as some extracellular secretion and in between dry and wet type. In incompatible pollination, pollen germination as well as growth of pollen tube beyond the stigma surface was terminated due to callose deposition within the papilla cells of the aborted pollen. Presence of sporophytic self-incompatibility, lack of nutrient for pollen germination at stigmatic surface, hard stylar tissue arrested the pollen germination as well as growth of pollen tube beyond the stigma surface ultimately suppress seed setting.

Key Words: Stevia (Stevia rebaudiana), pollination, pollen viability, protandry, self incompatibility.