

Sarayut Kitipatthaworn 2011: Vegetative Growth of Cut *Dendrobium* Hybrid and the Correlation with Annual Climatic Variation. Master of Science (Agriculture), Major Field: Horticulture, Department of Horticulture. Thesis Advisor: Mr. Parson Saradhulthat, Ph.D. 59 pages.

Growth and yield of cut *Dendrobiums* fluctuate seasonally. To realize the effects of environmental factors on vegetative growth and development of *Dendrobium* Sonia 'Ear Sakul', the research was set up to establish the correlation between the environmental conditions, the vegetative development and food reserve expressed as total non-structural carbohydrates (TNC). The micro-climate under saran houses that the *Dendrobium* were grown was monitored year round at three farms located in Kamphaeng Saen - Nakhon Pathom province, Panom Tuan – Karnchana Buri province and Pak Chong – Nakhon Ratchasima province. The annual climate data revealed that Pak Chong farm was lower in temperature and irradiance than the rests. The current shoot development took 3.8 months to reach the maximum length of 44.6 cm with 7.4 leaves prior to flower bud initiation. TNC in leaf and current shoot was similar with ranging of 90.7-91.4 mg D-glucose/gDW. Leaf TNC at flowering and post-flowering stages was higher than those at pre-flowering. All environmental factors were correlated with the vegetative growth and development. Irradiance was negatively correlated with the current shoot length ($r = -0.610$), the current-shoot development duration ($r = -0.264$) and leaf number ($r = -0.337$) but it was positively correlated with leaf TNC ($r = 0.196-0.554$). The relative humidity, rainfall and temperature were positively correlated with TNC accumulation.

Student's signature

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