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The Check of Mathematics Models Constancy for Evaluation the Surface of Leaf in Some of Kinds and Jungle and Garden Ecotypes in North Iran

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Abstract: The Alumetric relation and use of numeric index in different kinds of biological studies such as systematic subjects, increasingly be fortune. This matter can by reason of manifest these criteria in comparison with classic qualitative criteria. The different mathematics models such as regression equations are case of this index. In this research, the number of 1800 leaves, from 15 different jungle and gardens kinds and 34 ecotypes, randomly select, that there are surface in gardens and jungles of Iran north provinces. Then were measured length and width and surface of these leaves. The real of surface leaf were measured by PLACOM digital Planymtr and multiplex regression analysis done by SAS, SPSS software. It is observed that regression relation between length and width and the surface of leaf from different kinds in fix and ecotypes differences in this matter has not meaning full effect.

Key words: The mathematics model · The surface of leaf · Kind

INTRODUCTION

The process of attempt in the way of creation and selection mathematics approximate equations for phenomenon's call mathematics modeling. The mathematics modeling forecast often for the purpose of explains and expression treatment of phenomenon's and also does their control. One of the mathematics modeling ways is regression statistical way that results in regression equations. In fact regression analysis of statistical technique for the check and modeling is relationship between variations.

One of aspects of application equations and regression models, the check of Alumetric relation is in the systematic science of animal and plant that present research is the sample of that.

The shape of leaf is usually fix and monotonous in a kind or a plant and of course, sometimes is not monotonous in some of plants and has two or some different shapes, that call polymorphism.

In any way the shape of leaf is one of old recognition keys in plant systematic science. Today biologists incline to quantify this key and other recognition keys. In this base to find equation that present the shape of leaf and in fact length relationship is important. Union and colleagues in 2001, the relation ship between length and width of leaf with its surface, in hazel plant to check in north Iran.

Gain equation from this research meaning fully to differ with the results of sue and colleagues in 2007 that gain in china.

Later studies done in Iran with more models. The gain first equation had acceptable elegance with the results of Shabani study and colleagues in 2009. It seems, that ecotype differences between hazel of north- center of Iran and china is in some measure that related model is not valuable. This subject show that regression model between length and width and the surface of leaf even can be recognition key in low kind classification.

With this assumption, the present check done between 6 tree kinds of dicotyledonous and in 3 region of differences growth.

MATERIALS AND METHODS

Plant materials that use in this study, to consist of 1800 model of leaf from 6 tree kinds of dicotyledonous with 3 ecotypes from each that select of natural the place of growth in the north contain the jungles of Golestan, Loveh, Baghar abad, Novdeh, in Golestan province, Sisangan and Amol in Mazandaran province and botanic centre of Tehran and Tabriz universities.

The model of leaf after provided, separation kind and base, keep in separately the plastic envelopes, so to prevent of their dry and change shape at the time of measurement to witness minimum error.

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Table 1: Plant samples studied

Sampling location	Scientific name	Persian name	Row
Loveh, Ramsar, Amol	Medlar	Azgil	1
Gonbad, Anzali, Amol	Mulberry	Gerdo	2
Loveh, Sisangan, Tabriz	Hazel	Fandogh	3
Ghorogh, Amol,Ramsar	Oak	Balout	4
Loveh, Amol, Sisangan	Walnut	Tot	5
Gonbad, Tabriz, Tehran	Sycamore	Chenar	6

Table 2: Multivariate regression relationships between length and width of the leaf area of some dicotyledonous species in a habitat in Golestan province

Multivariate regression model	Species	Row
LA= 0.652 LW + 0.86L – 1.21	Medlar	1
LA = 0.276 LW – 0.28 L – 0.76 W + 0.629	Walnut	2
LA = 0.406 LW + 0.821 L + 0.682 W – 1.732	Hazel	3
LA = 2.98 LW + 0.346 L -0.557	Oak	4
LA =3.871 LW + 0.058 L – 0.073 W + 0.104	Mulberry	5
LA = 0.453 LW + 0.648 L - 0.529W	Sycamore	6

The length and width of models of leaf, are measured by millimeter ruler, then it's area are measured with two ways of millimeter paper and use of PLACOM digital palnimetere apparatus. Regression accounts done by SAS, SPSS statistical software and charts to draw by SAS, Excel software.

RESULTS

Regression equations with some variations related to each of studied kinds gain with use of the first data of the places of growth and helping statistical ways. The results of regression analysis to indicate meaningful elegance of data of another places of growth with introduced model in any 6 studied kinds. ($\propto$ = 0/01). This subject differ with the results of union and colleagues (2007) and sue and colleagues (2007). But conform with the results of Shabani and colleagues (2009) and Jafarzade razmi and colleagues (2010.).

It seems that ecotip differences in this research is not recognizable by introducted regression models. This subject can be by reason of considerable similarity of places of growth. Just while the differences of these places of growth is very much, the differences of gain models is meaningful, such as meaning full differences of sue model and colleagues with union model and colleagues in hazel plant of Iran and China.

The important point is that, the gain equations of another places of growth meaning fully conform to other data of any kind.

In this matter, the gain model of hazel kind data that take sample from Tabriz university of botany garden, exceptionally didn't conform with hazel another two places of growth.this matter can resulting of the effect of biopsy that it is effect very much in evolutional and genetic studies. By the way nurture conditions of these plants it won't be in effective in university botanic garden, that considerable differ with natural habitats.

The elegance of any kind of data studied with regression models of other kinds and meaning full differences observed between these equations. ($\propto$ = 0/15).

According to this research,regression models with some variations related to abumetric relation in leaf of intended of kinds can be considerable, as recognition key in the surface of kind, but it doesn't pay attention, for ecotypes recognition.

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