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Study of effects of irrigation with waste water on growing season of *Bromus tectorum*

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Key words : waste water-Heavy metals-Growing season-*Bromus tectorum*

Introduction Because limited sources of water in Iran water outgoing of refinery is used for irrigation purposes In some places . Quality of such these waters and their effects on plants is under doubt .Mahdavi(1) says that concentration of materials in irrigation water even very small amounts ,Has an important role in agriculture and drinking .Rahmati measured chrome concentration in treated waste water outgoing of Irandocharkh Industrial unit .results showed that chrome concentrarion in samples is about 15 mg/lit ,while its standard level is 1 mg/lit It can be concluded that that there are probabilities of presence of heavy metal pollutants in iriigation by waste water that may srore in plant body .Additionally effects of using waste water on growing characteristics and forage must be studied .

Materials and methods Sample site is located in downward of refinery of industrial city of Alborz in Qazvin province in Iran ,with area over than 28125 ha .It has piedmont plains with gentle slope that has northern to southern direction .Soil is deep ,fine with calcic horizone .(Calcic cambisols) Dominant species is *Bromus tectorum* that is under grazing by about 400 to 500 livestock daily There afre two kinds of land downward of refinery ,farming lands and rangelands ,Animals graze rangelands from late winter to summer and in rest of the year they consume residuals of previous farming season .There are good sources of minerals in waste water so farmers don't need to consume any manure Except to nitrate manure That is consumed 6 bag per hectar (300 kg/ha) .Refined waster water go out of refinery after aplying ordinary methods of refining .Because presence of slope in lands all of waste water will go to downward .

Sampling and data gathering *Bromus tectorum* samples were gathered Three times in growing season using randomized-Systematic method .First time was in vegetative duration in last week of February ,The second was in flowering duration in May and the third time was in seedling stage in june .Main road was selected as base line .plants were cut to height animal grazes using square plot and this procedure was done every 1000 meters ,then samples were moved to rhe lab after drying .Concentration of lead ,zinc and nickel was measured each time .Results were studied by SPSS software(version 12) and ANOVA method was applied for this purpose .Additionally in each plot total amount of plants was gathered and was compared with similar plots in lands near these place without consuming waste water .They were dried and their weight in kg was measured .

Results and discussion Results showed that absorbed amounts of heavy metals in *Bromus tectorum* body is significantly more than its standard levels .Additionally there is significant differences between concentrion of these heavy metals during growing season .From beginning to End of growing season ,concentration of heavy metals decreases .This kind of decrease can be a result of increasing precipitation in last month of winter .It seems that using waste water to irrigation of rangelands doesn't have a bad effect on their growing characteristics .Each Bromus length is quite normal and total volume of plants in each plot is not less than similar plots in lands near this region that don't consume waste water .these lands owners are satisfied Of consuming this kind of water ,they say that their costs for aplying manure Is less than other owners .because they don't have to consume it for their lands .but main problem has located in plant body where hazardous amounts of Heavy metals are ... will be directly consumed by animals .

Conclusion As was shown before if pollutant concentration in irrigation water be higher than standard levels its residuals will be stored in plant body and will be consumed by animal directly so it will be seriously hazardous .As materials like heavy metals doesn't decrease during ordinary ways of refining .It seems that only absolute way to decrease them is biological way .In this method ,enough amounts of some biomasses like fungies and some special kinds of bactries ,sea weeds and even wood residuals are added to waste water after its ordinay refining . .As some heavy metals structure is like metals like Calcium so this biomasses may consume them as their food and destroy themselves .this biological method is so expensive for large scales of waste water so maybe many of managers decides not to apply that .

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