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A Check List of Weeds in Al-Kharj Area of Saudi Arabia

Mohammed N. Al-Yemeny

Botany and Microbiology department, College of Science, King Saud University,
P.O.Box 2455, Riyadh-11451, Saudi Arabia

Abstract

A Check list of 51 weeds, belonging to 27 families in Al-Kharj area of Saudi Arabia, was listed. All these weeds species were found in agricultural fields or in neglected farms. Most of these weeds cause moderate to severe infestations to various agricultural crops and fodder plants. Correct identification and the methods of eradication of these weeds from the agricultural fields are one of the primary objectives to improve the crop yields, further, a concise regional weed flora would serve much and help farmers in these regions. A brief description of each weed species is provided to make its identification easier.

Introduction

Weeds represent a widely distributed plant species and biologically important components of most natural and semi-natural ecosystems in the world (such as arable, range lands, forest and aquatic ecosystems). Robbins *et al.* (1952) defined weeds as plants that are harmful because they interfere with agricultural operations, add to costs, reduce crop yields and increases labor input. Recently Holzner (1978) defined weeds as "plants adopting man made habitats and interfering with human activities". The distribution of weeds is strongly influenced by environmental and biological factors.

The losses in crop yield are resulted from weeds competing for water, nutrient uptake, light, space and other ecological resources. Hill (1977) and Sen *et al.* (1984) reported that the losses caused by weeds to agriculture are more than losses caused by pest put together. However, weeds have certain limited uses such as those for medicinal or ornamental purposes. In fact weeds and wild plants still used quite largely by primitive people in medicine as well as in emergency food supplies. Since weeds occur with wild plant they are also grazed by livestock as well as wild life, which depend largely on natural vegetation. Greater attention is required in order to understand the nature of weeds and to analyze their Interactions between crops and environment, in order to reduce their effects on crop yield. Weeds control managements require knowledge of the weed flora of the region and the possible noxious quality of different type of weed species.

Weeds have become an agricultural problem in the last two decades in Arabian peninsula in general and Saudi Arabia in particular (Parker, 1973; Chaudhary and Al-Howaishel, 1980; Chaudhary and Zawawi, 1983; Saghir and Chaudhary, 1986; Chaudhary and Akram, 1987; Chaudhary, 1989; Cope, 1985., El-Halawany and Shaltout, 1993; Basahy and Monawar, 1994). However, studies on weeds in this country are still ragmentary and incomplete when compared to the magnitude of the problems.

Study Area

Al-Kharj is one of the important agricultural regions of the central province of Saudi Arabia (Fig.1), it occupies an area of 18,000 Km²; out of this 18,060 hectares are cultivated. Great deals of agricultural developments are taken place during the last three decades. Al-Kharj is located about 80 Km south east of Riyadh (24°10' N 47°24' E). The elevation is 430 m.a .s.l. The area has a desert climate with a low rainfall (the mean is c. 67 mm year⁻¹) and high maximum temperature range (22.9-45.5°C) where as monthly mean relative humidity range is from 15.7 to 45.1% (Al-Yemeny, 1989). The most important agricultural crops cultivated are wheat, sorghum, alfalfa, and barley; fruit crops like date palm, citrus, watermelon and some vegetable crops such as tomato, onions, cucumbers, brinjal, pepper, cauliflower etc. The weeds which interfere with the above agricultural crops are virtually based on irrigation.

Materials and Methods

Specimens Collection and Identification: Specimens were collected and identified from twenty farms in five localities in Al-Kharj area. Samples of these recorded species were prepared as herbarium specimens for identification. Most of the weeds were collected from agricultural lands of date palm, alfalfa and wheat besides other weeds from minor crop lands. The magnitude of infestation of crops by weeds was based on visual or arbitrary observations. Species identification was made by following the work of Migahid (1978), Collenette (1985), Chaudhary (1989) and Mandaville (1990). Remarks were also made for each taxon wherever it is necessary. Scientific and local names have been given for all taxa . The local arabic names were obtained by interviews with the local people in the area. Most specimens of the weeds were deposited in the Herbarium of Botany & Microbiology department, King Saud University, Riyadh.

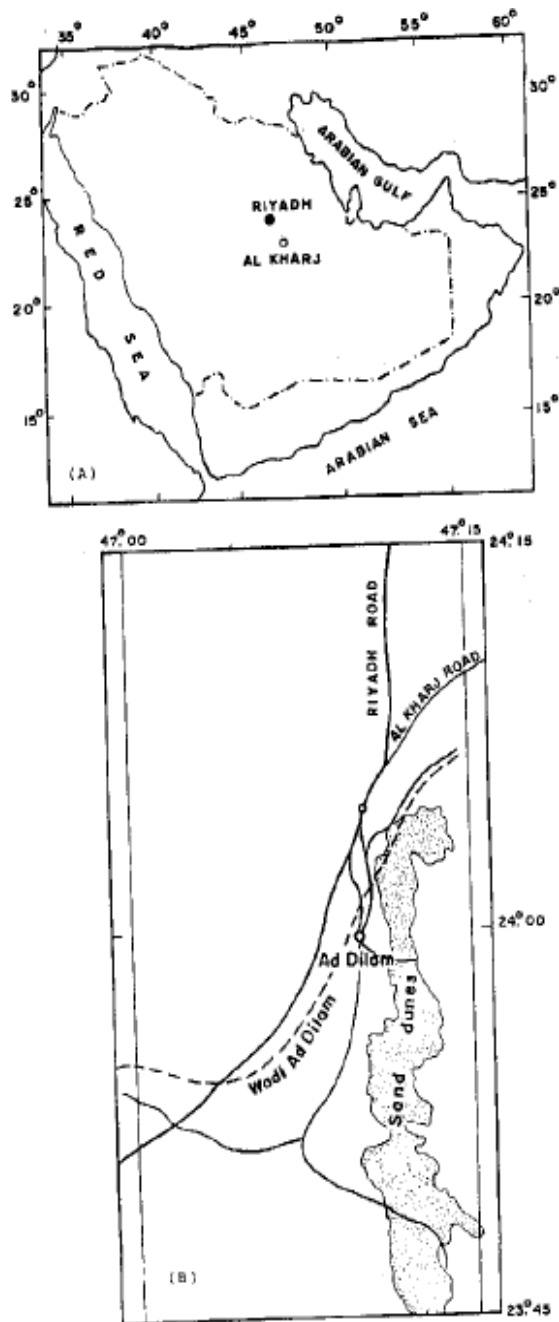


Fig. 1: (a) Map of Saudi Arabia and (b) the study site

Checklist of the Species

Amaranthaceae

Aerva javanica (Burn. F.) Spreng.

Local name : Errwa or Aerva

Perennial herb, branched, erect. Leaves alternate, lower leaves upto 10 cm long, upper smaller, lanceolate. inflorescence a naked receme. Flowers very small; about 3 mm in diameter female flowers larger than the males.

Fruits globular, thin walled, single seeded.

Remarks: This is a component of the native flora, common on light soils. It causes moderate infestations in orchards and nurseries but not serious in cultivated fields.

Amaranthus viridis L.

Local name: Qutaifa

Erect annual with broad simple leaves. Flowers in dense axillary as well as terminal spike. Fruit a single seeded capsule, circumcissile; seeds usually shining black.

Remarks: It is one of the most noxious weeds found in vegetable crop area, causing light to heavy infestation. It has been reported as an alternate hosts for some nematodes and viruses affecting crop plants. The leaves and stems are eaten by the local people.

Asclepiadaceae

Calotropis procera (Alt.) Ait. F.

Local name: Usher

A tall shrub or a small tree with milky juice. Leaves opposite, large, semi-succulent, covered with waxy layer. Inflorescence an umbel like cyme. Fruit an inflated, ovoid follicle; seeds comose.

Remarks: Found in neglected fields and low-lying watercourses.

Boraginaceae

Gastrocotyle hispidia (Forssk.) Gunge

Local name: Gahalle

A low, ascendingly branched, bristly hairy, prostrate herb. Leaves alternate, lower few long petioled, the upper sessile, oblong, spatulate to ovate, wavy margined, obtuse. Flowers very small, blue, solitary, axillary, short pedicelled. Fruit single seeded ovate, areolate nutlets, upto 4 mm x 2.25 mm.

Remarks: A common winter weed, rarely causing serious infestation.

Heliotropium bacciferum Forssk.

Local name: Ramraam

A much branched perennial shrub upto about 50 cm high. Leaves alternate, shortly petioled to almost sessile, upto 4 cm long; blade lanceolate to linear. undulate, revolute margined, acute. Flowers in terminal, paniculate and extra axillary, one-sided cymes. Fruit bearing into four nutlets, green, often 2-3 lobed.

Remarks: A common weed in lands newly brought under cultivation, nurseries or open orchards.

Capparaceae

Capparis spinosa L.

Local name: Shaffallah

Shrubby plant of rocky deserts, upto 0.5 m high. Densely branching from the base, decumbent or ascending. Leaves simple ovate or suborbicular, 2-4 cm long, pubescent, often

ending in a prickle, entire, green or whitish-green, petiole very short, stipules hooked spiny. Fruit a pear shaped fleshy berry, 3 cm long, dehiscent with brown to grey seeds.
Remarks: Found on silty ground and steep cliffs, rare or occasional in neglected farms.

Caryophyllaceae

Sclerocephalus arabicus Boiss.

Local name: Dareesah

Procumbent annual herb, with branches 10-12 cm long. Leaves linear, terete, mucronate. Stipules scarious, very acute. Flowers in spiny spherical heads. Fruit a membranous utricle. many in a spinous head.

Remarks: A common weed causing light to heavy infestation to crops in sandy soils which are newly brought under cultivation.

Chenopodiaceae

Bessie muricata (L.) Murr.

Local name: Quttain

Annual, densely pubescent herb, usually about 30 cm tall. Leaves flat, alternate, sessile, rarely more than 2 mm wide. Flowers unisexual or bisexual in a axillary clusters. Fruit single seeded with 5 radiating spines

Remarks: Common weed in wheat and alfalfa fields, newly brought to cultivation, specially in light soil.

Salsola imbricate Forssk.

Local name: Harm, Mullaayh

Yellow green shrublet of disagreeable odour of rotten fish. Leaves densely clustered, small, succulent, scale-like, hairy, generally absent on flowering branches. Spikes branched. Fruits winged.

Remarks: Found in wastelands, saline ground near depression, neglected areas, frequently seen on the peripheral areas of wheat and alfalfa crops, causing moderate to severe infestation, specially in light soils,

Cistaceae

Helianthemum lippii (L.) Dum. Cours.

Local name: Ragrug

A small desert shrublet with slender intricate branches. Leaves elliptical sometimes enrolled into needle shape with the margins of the upper surface downward, broad or narrow, often 1-1.5 cm long and 4-6 mm broad. Branches long virgate spinescent after flowering, each branch ending in a 2 spikes. Flowers sessile yellow, Fruit a unilocular capsule, opening by valves.

Remarks: Shallow sands over limestone, rare in neglected farms.

Compositae

Calendula arvensis L.

Local name: Hanwah

Annual, branched, erect or sub-erect herb. Leaves alternate, entire to sinuate-toothed, acute. Flower heads solitary, terminal on branches. Achenes in 2-3 rows, usually of three kinds outer curved with prominent prickles on the back, the

middle broadly or narrowly winged, with or without prickles, the inner circular and tubercled.

Remarks: A common cool season weed causing heavy infestation in wheat, barley, alfalfa and other vegetable crops, specially in heavy soils.

Conyza bonariensis (L.) Crong.

Local name: Nafle

A densely pubescent, leafy, annual plant sometimes upto 1.5 m tall. Leaves radical and cauline. Stem leaves alternate, linear. Flower heads in leafy or naked looking panicles. Achenes very small, pubescent, pappus of rough hairs in one row.

Remarks: A bad weed causing very serious infestations in the fields and orchards.

Flaveria trinervia (Spreng.) Mohr.

Local name: Shagaira

A much branched annual herb upto about 60 cm tall. Leaves opposite, petiolate, sharply remote-dentate. Heads very small, 1-5 flowered, sessile, at the tips of branches. Achenes 2.5 mm long, less than 1 mm wide, black. Pappus none.

Remarks: One of the most serious weeds in farms and waste grounds.

Lactuca serriola L.

Local name: Libbayn

Annual, erect herb with milky latex, upto about 1 meter tall. Flower heads in terminal, small, less than 1 cm long. Involucral scales linear in several rows. Achenes small, beaked pappus of simple, white hairs.

Remarks: A serious weed causing serious infestation in agricultural areas.

Launaea capitata (Spreng.) Dandy

Local name: Moraar, Hawwa

Annual herb with rosetted, leaves, margin lyrate-cleft. Flower heads all ligulate, borne in terminal, lax, short panicles or on branching scapes. Involucre of imbricated scales in several rows. Achens compressed or cylindrical or grooved or angular- conical. Usually the outer achenes hairy or rough, dark brown. Pappus of soft, white hairs.

Remarks: It does not cause any serious problem except in sandy areas newly brought under cultivation.

Convolvulaceae

Convolvulus arvensis L.

Local name: Olleyq, Khurtah

A perennial twining herb with deep, underground suckers. Leaves alternate, much variable in shape from sagittate-lanceolate through cordate-lanceolate. Flowers on axillary peduncles in groups of 1 to 3. Corolla white to pinkish. Fruit a 4-seeded, irregularly dehiscent capsule. Seeds brown, ovate tubercled.

Remarks: A serious and persistent weed of old agricultural

lands causing light to moderate infestation .

Cruciferae

Eruca sativa Mill.

Local name: Jirjir

A branched, erect, sub-glabrous, pungent tasting leafy annual herb upto 1 meter tall. Leaves alternate, petiolate, lyrate-pinnatifid. Flowers in large terminal and axillary racemes. Petals yellowish with prominent violet or brown veins. Pods upto 3 cm long, beak prominent, flat, 5 mm wide. Seeds ovoid, turgid.

Remarks: Seen in agricultural lands during winter season causing severe infestation. It is also cultivated as an oilseed or vegetable leaf crop.

Zilla spinosa Prantl.

Local name: Silla

Thorny herb upto 60 cm high. Lower leaves rosetted, upper oblong, linear. Fruit globose, beaked, 8-10 mm in diameter; indehiscent.

Remarks: In rocky and sandy deserts, wadis and silty basins, frequent and found around agricultural areas and neglected fields.

Cucurbitaceae

Citrullus colocynthis (L.) Schrad.

Local name: Henze'

An annual, scabrous, trailing monoecious herb with branched tendrils. Leaves alternate, deeply 3-5 lobed, lobes pinnate. Flowers male and female, usually solitary axillary. Corolla pale yellow, 5 lobed, campanulate. Fruit globular, upto 7 cm in diameter, green, mottled or striped with yellow. Seeds numerous, ovate, flat.

Remarks: Found as weed in neglected fields and open orchards, sandy or silty ground, particularly in wadis; common.

Cuscutaceae

Cuscuta planiflora Ten

Local name: (ShUbaykah)

Parasitic, yellow, twining, leafless herb. The leaves reduced to small scales. Flowers in heads or in clusters, very small, sepals united with 5 teeth, corolla tubular or bell shaped of 5 united petals with 5 teeth. Styles paired with linear stigmas. Fruit a capsule.

Remarks: It is a weed of agricultural land, occasional to locally frequent in spring. Causing light to moderate infestation for alfalfa crop.

Euphorbiaceae

Chrozophora oblongifolia (Del.) A. Juss. Ex Spreng.

Local name: Tannum

Perennial, waxy branched herb upto one meter tall, densely tomentose with stellate hairs. Leaves alternate, long

petioled, broadly ovate to almost triangular, upto 18 cm x 6 cm. Male flowers in short axillary racemes with one or two female flowers arising from the same axil. Capsule dehiscent into three cocci, densely covered with silvery scales. Seeds, tubercled, poisonous.

Remarks: In agricultural fields as well as waste grounds.

Ricinus communis L.

Local name: Khurwa

Perennial tall shrubs. Leaves alternate, long-petioled, lamina upto 30 cm across, deeply palmately lobed. Flowers male and female, in large, terminal paniculate racemes of cymose clusters; male clusters towards the lower end and the female towards the upper end. Capsules spinous breaking into three, one seeded cocci. Seeds mottled, brown.

Remarks: Seen in cultivated and in orchards and neglected fields.

Juncaceae

Juncus rigidus C.A. Meg.

Local Name: Khaus

Perennial, stiff, rhizomatous plant, upto about one meter tall. Rhizome stout making dense or rather loose tussocks. Culms terete, rigid. Leaves terete rigid, spinous tipped. Inflorescence a terminal panicle of corymbose cymes. Flowers small with six subequal or unequal perianth segments connate at base. Fruits a 3 chambered, loculicidal capsule with a large number of minute seeds.

Remarks: Along drainage channels, near irrigated runoff, locally very common.

Leguminosae

Alhagi maurorum Medik.

Local name: Shubrum

Perennial, spiny, leafless looking shrublet. Axillary branches modified into stout, green spines. Flowers borne on the axillary spines. Flowers pink, papilionaceous. Pods upto 4 cm x 4 mm ; reddish brown, terete, somewhat torulose. Seeds dark, greenish grey, smooth.

Remarks: Along irrigation channels, date palm groves and other agricultural areas causing light to moderate infestation in wheat and alfalfa crops, specially in light sandy soils.

Prosopis farcta F.W. (Banks et Sol. MACBR).

Lagonychium fractum

Local name: Aagul

A perennial, spiny, much branched shrub upto one meter tall. Branches with short prickles. Leaves alternate, bipinnate compound, pinnae 4-6 pairs, leaflets usually smaller. Inflorescence axillary, dense, cylindrical-spikes. Pod grey to purplish red, corky, variously constricted, odd shaped.

Remarks: Along water courses, date palm groves, neglected orchards causing light infestation in alfalfa crop, Specially in heavy soils.

Trigonella stellata Forssk.

Local name: Nataf

Prostrate, branched, annual herb. Leaves alternate, petioled stipulate, pinnately trifoliate, leaflets obovate, notched dentate, serrate in the upper half. Flowers yellow papilionate. Pods thin reticulate, falcate. Seeds small, pale golden yellow.

Remarks: Found in wadis and agricultural lands.

Liliaceae

Asphodelus tenuifolius CAVAN. F.

Local name: Barwaq

Annual, glabrous herb upto 30 cm tall. Leaves in a basal rosette, seriate, hollow. Inflorescence a simple or dichotomous scape. Flowers bracteate, pedicellate with white or pinkish perianth segments. Fruit a 3 valved globular capsule. Seeds triangular, transversely furrowed or ribbed.

Remarks: Found in wadis and cultivated lands and also in neglected farms, specially in sandy soils.

Malvaceae

Malva parviflora L.

Local name: Khubbayza

Annual sub-erect, branched herb. Leaves alternate, long, petiolate, orbiculate, cordate, palmately shallow lobed. Flowers on short, axillary peduncles. Flowers small, each with an epicalyx of 3, small, linear scales free from each other. white or bluish. Fruits schizocarpic, breaking into a number of one seeded cocci.

Remarks: Agricultural lands and waste grounds, very common, causing moderate to heavy infestation to wheat, alfalfa and other vegetable crop, grown in light and heavy soils.

Plantaginaceae

Plantago amplexicaulis Cay.

Local name: Riblah

Annual herb with conspicuous stem. Leaves glabrous or slightly pubescent acute. Peduncles arising from the leaf axils. Heads ovate cylindrical, bracts broadly scarious margined; calyx lobes 4, subequal, corolla 4 lobed, tubular, limb reflexed. Fruit a capsule.

Remarks: Agricultural areas with silty or shallow sands, frequent.

Poaceae

Cenchrus setigerus Vahl

Local name: Humrah

Annual, coarse grass. Inflorescence cylindrical, narrow, lax spikes bearing individual buds. Spikelets enclosed by bristles; inner bristles united to form a cup like structure. Outer bristles reduced to small enations.

Remarks: It is a serious weed causing light to moderate infestation on wheat, orchards and lawns.

Chloris barbata Sw.

Local name: Nagil

Erect, annual plant with branched culms, Spikelets sessile, purplish with 3 awns.

Remarks: It is considered as a bad weed because it grows very fast covering a large area causing moderate to severe infestation.

Cynodon dactylon (L.) Pers.

Local name: Thayyil

A perennial, tufted, stoloniferous grass with scaly rhizomes. Leaf blades short, acute. Inflorescence of 3-4, digitate spikes or spikelets. Spikelets arranged in two, compact, overlapping rows, awnless, 1-flowered, glumes subequal, about half as long as the lemma. Seeds minute, brown to dark brown.

Remarks: A serious weed in agricultural areas causing moderate to severe infestation to alfalfa crop, specially in light soils.

Dactyloctenium aegyptium (L.) P. Beauv.

Local name: Abo-Robka, Rishaedy

An annual ascendingly branched grass, rooting at nodes. Leaf blade flat, Inflorescence of usually 5, digitate spikes with the spikelets arranged in two dense rows on the lower side and the rachis of each spike projecting beyond the spikelets, spikelets; laterally compressed; glumes persistent, unequal. Grain, ovate to wedge shaped, reticulate.

Remarks: A serious weed found in date palm orchards and alfalfa.

Echinochloa colona (L) Link.

Local name: Sahma

Annual, erect or ascendingly branched grasses. Leaf blades flat. Inflorescence a racemose panicle of distant racemes of spikelets; spikelets rarely more than 2 mm long, closely packed in more than 2 rows or irregularly arranged on one side, lower glume much smaller than the upper which is as long as the lemmas. Grains small, enclosed with in the indurated lemma and palea.

Remarks: A serious weed in agricultural areas.

Ochthochloa compressa (Forssk.) Hilu

Local name: Hamra

Perennial grasses. Leaf blades flat. inflorescence of 2 to 9 digitate spikes. Spikelets awnless, compressed, arranged in two, compact, overlapping rows on one side of the rachis. Glume unequal keeled, single nerved. Lemmas compressed, 1-3 nerved. Grains elliptical, pale brown.

Remarks: A weed in agricultural region.

Panicum turgidum Forssk.

Local name: Thomam

An erect robust perennial grass with woody root stock. Leaf blade linear lanceolate. Inflorescence a panicle of rather

loose, pedicelled spikelets. Spikelets ovoid, c. 4 mm long, glabrous.

Remarks: Serious weed in the area, growing in all types of soil.

Setaria verticillata (L.) P. Beauv.

Local name: Lussaqa

Annual, tufted grasses with soft, flat leaves. Culms upto about 60 cm tall. Inflorescence a terminal, dense, cylindrical, awnless spikelets, spikelet cluster subtended by several long, usually persistent bristles. Bristles retrose barbed, spikelets 2 flowered the lower male sterile, the upper fertile.

Remarks: It is a serious weed causing severe infestation in old alfalfa fields and orchards.

Polygonaceae

Calligonum Comosum L. Her. F.

Local name: Arta

Branched leafless looking shrub, twigs slender glabrous, richly branched. Leaves filiform less than 2 mm long. Fruit a reddish ovoid spiny achene, spines soft.

Remarks: In deeper sandy and rocky deserts and wadis. Frequent to common.

Emex spinosa (L.) Campd.

Local name: (Humbas)

Annual, branched herb. Leaves alternate, stipulate, long petioled. Lamina ovate, cordate, entire, fleshy. Flowers small in axillary clusters, consisting of pedicellate male and sessile female flowers. Perianth of 6 segments, the 3 outer segments recurved spinous in fruit, stamens 4-6. Ovary triangular, stigmas 3, linear. Fruit single seeded nutlets, enclosed within the hardened perianth.

Remarks: A common weed causing light to heavy infestation throughout the region, specially in alfalfa crop in shallow silty soils.

Rumex vesicarius L.

Local name: Hummayd

Annual herb with alternate leaves. Leaves long petioled. Flowers small in branched terminal racemose inflorescence. Fruit rose-pink orbicular, triangular in the middle with membranous wings

Remarks: Found usually on shallow sandy, rocky and silty soil.

Portulacaceae

Portulaca oleracea L.

Local name: Rigla

A prostrate or ascending branched, glabrous herb. Leaves fleshy, sessile, opposite, spatulate or obovate, obtuse. Flowers small, solitary or clustered in forks at branch tips. Sepals two. Fruit a single chambered capsule, opening by a lid. Seeds small, glossy black, tubercled.

Remarks: Usually causes light to moderate infestation but sometimes an extremely serious weed. Also a cultivated crop.

Primulaceae

Anagallis arvensis L.

Local name: Khunaizah

Annual, much branched herb upto 20 cm tall. Leaves opposite, sessile, ovate, entire, obtuse 3 veined. Flowers blue or scarlet, solitary axillary, on long thin peduncles. Fruit a spherical capsule opening by a lid. Seeds dark brown.

Remarks: A winter season weed grows in palm orchards and agricultural lands, causes light to heavy infestation.

Solanaceae

Datura innoxia Mill.

Local name: Sim-al-faar

A branched robust annual Herb, about one meter tall. Leaves alternate, petiolate; lamina ovate, lanceolate. Flowers solitary, axillary; calyx tubular, corolla white. Fruit a globular, spiny capsule. Seeds brown.

Remarks: A common weed often causing very serious infestation to wheat crop and also found in neglected farms.

Withania somnifera L.

Local name: Semm-al-firakh

A perennial herbaceous shrub about 1.5 meters tall. Leaves opposite, ovate, lanceolate. Flowers small, in axillary cluster, Fruit a bright red, globular berry enclosed with in the enlarged inflated calyx.

Remarks: It causes light to heavy infestation in orchards and sometimes in fields.

Solanum elaeagnifolium Cay.

A branched annual herb upto about 60 cm tall and densely pubescent with stellate, yellow hairs. Leaves alternate, petiolate, narrowly lanceolate, obtuse or acute. Flowers few flowered, peduncled. Fruit a yellow globose, leathery berry. Seeds orbicular flat.

Remarks: A common weed in field and orchard areas.

Typhaceae

Typha domingensis Pers.

Local name: Barda

Perennial, rhizomatous, aquatic herb upto about 2 meters tall. Leaves distichous, a meter or more long, linear, round-based, entire, spongy. Flowers minute, unisexual, with perianth, very densely packed in cylindrical terminal spikes, spikes 30 cm long, lower half with only female flowers, the upper with male flowers. Fruit minute encircled by thin hairs towards the base of the ovary stalk.

Remarks: Near standing water, or in runoff areas; rare.

Umbelliferae

Anisosciadium lanatum Boiss.

Perennial herb with bipinnately parted leaves. Leaves with clasping base. Inflorescence a compound umbel. Flowers whitish, pink, bracts spiny-tipped. Fruitlets of each secondary umbel aggregated before ripening but later separating into spiny units.

Remarks: Gravel deserts and wadis.

Urticaceae

Forsskalea tenacissima L.

Slender herb, 30 to 60 cm high. Woolly with hooked stiff hairs. Leaves small serrate, easily attaching to objects come into contact. Male and female flowers separate. Calyx with narrow lanceolate lobes. Fruit an achene.

Remarks: In waste ground and near agriculture areas.

Zygophyllaceae

Peganum harmala L.

Local name: Harmal

A much branched, annual or perennial, herbaceous shrub, about 75 cm tall. Leaves alternate, irregularly palmately or pinnately divided into narrow acute or obtuse lobes. Flowers solitary, terminal. Fruit a 3-chambered capsule. Seed angular, tubercled.

Remarks: Usually seen in and around agricultural areas, orchards and wadis.

Tribulus terrestris L.

Local name: Haraas

A prostrate annual herb. Leaves opposite, unequal, paripinnate compound. Flowers solitary axillary. Fruit schizocarpic, breaking into 5 cocci bearing 4 prickles each.

Remarks: Common weed causing very serious infestation in orchards and agricultural areas, specially in alfalfa crop, found in light soils.

Zygophyllum album L.

Local name: Retreat

Erect succulent herb, with opposite 2 - foliate compound leaves. Leaflets cylindrical, fleshy. Flowers solitary, axillary, white or creamy. Fruit a capsule, 4-5 chambered, angled. Seeds, dark brown.

Remarks: It is a cool season or early summer weed, causing light to moderate infestation to agricultural areas, specially in saline soils.

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