

**A KEY TO THE PAKISTANI GENERA AND SPECIES OF THE CHRYSOMELINAE AND HALTICINAE (COLEOPTERA: CHRYSOMELIDAE), WITH DESCRIPTION OF NEW GENERA AND SPECIES INCLUDING THE ECONOMIC IMPORTANCE**

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Keys (with distinguishing characters) are provided for the genera and species of the Chrysomelinae and the Halticinae (flea-beetles) of West and East Pakistan. Information on their economic importance is also given. The following new taxa of the Chrysomelinae are described from West Pakistan: *Chrysolina kamali* sp. n.; *C. punjabensis* sp. n.; *Neolycaria* gen n.; *N. ahmadi* sp. n.; *N. farooqi* sp. n.; *Anwarullahia* gen n.; *A. lahorensis* sp. n.; *A. nasiri* sp. n.; *Neopotonina* gen n.; and *N. hamidi* sp. n.

**Introduction**

The Chrysomelinae and the Halticinae (flea-beetles) were classified in the groups Cyclica and Trichostomes respectively, of older authors. Both are very important from the agriculturist's point of view and should be regarded as enemies of mankind. They are pests of economic importance and are known to attack several important crops, cultivated and uncultivated plants as may be noticed from Tables 1 and 2.

TABLE 1.—ECONOMIC IMPORTANCE OF THE CHRYSOMELINAE

Pest species	Host plants	Localities
<i>Ceralces ferrugineus</i>	<i>Manihot glaziovii</i>	West Africa
<i>Colaphellus sophiae</i>	Mustard	Europe
<i>Chrysomela aenea</i>	Pear	Norway
<i>C. cuprea</i>	Willow, Poplar	Europe
<i>C. lapponica</i>	Willow	America
<i>C. lineatopunctata</i>	Willow, Poplar	N. America
<i>C. populi</i>	Willow, Poplar	Europe
<i>C. tremulae</i>	Willow, Aspen	Europe
<i>C. sohorae</i>	<i>Salix</i>	Arizona, Mexico
<i>C. crotchii</i>	<i>Populus tremuloides</i> <i>P. balsamifera</i> <i>P. grandidentata</i>	Virginia, New Mexico, Manitoba
<i>C. invicta</i>	<i>Populus</i>	Southwestern Alberta, Northwestern Montana
<i>C. interrupta</i>	<i>Alnus serrulata</i>	Southeastern Pennsylvania
<i>C. alnicola alnicola</i>	<i>Alnus rugosa</i>	Northern New Jersey,
	<i>A. tenuifolia</i>	Nova Scotia,
	<i>Salix</i>	Newfoundland
<i>C. alnicola interna</i>	<i>Alnus tenuifolia</i> ,	Inland regions, Alaska,
	<i>A. oregona</i> ,	British Columbia
	<i>Salix</i> sp.	
	<i>Populus trichocarpa</i>	

<i>C. alnicola littorea</i>	<i>Alnus oregona</i> , <i>A. rugosa</i> , <i>A. crispa</i> , <i>Salix fragilis</i>	British Columbia, Alaska
<i>C. walshi</i>	<i>P. balsamifera</i> , <i>P. grandidentata</i> , <i>P. tremuloides</i>	Ontario, Ottawa
<i>C. knabi</i>	<i>Salix fragilis</i> , <i>S. amygdaloides</i> , <i>Populus deltoidea</i> , <i>P. nigra</i> , <i>P. tremuloides</i> , <i>P. grandidentata</i>	Ontario, New Hampshire, New Mexico
<i>C. falsa</i>	<i>Salix discolor</i> , <i>Populus balsamifera</i> , <i>P. trichocarpa</i>	Central Ontario, British Columbia, Alaska
<i>C. aeneicollis</i>	<i>Salix</i>	British Columbia, California
<i>C. scripta</i>	<i>Salix</i> , <i>Populus</i>	Mexico, Ontario, British Columbia
<i>C. laurentia</i>	<i>S. fragilis</i> , <i>S. cordata</i> , <i>S. lucida</i> , <i>Populus balsamifera</i>	New Hampshire, Ontario
<i>C. confluens</i>	<i>Salix</i>	Western Washington, California
<i>C. semota</i>	<i>Salix</i> , <i>Populus balsamifera</i> , <i>P. trichocarpa</i>	British Columbia
<i>C. lineatopunctata</i>	<i>Salix</i> , <i>Populus</i>	British Columbia
<i>C. texana</i>	<i>Salix</i>	Central and South Texas
<i>C. cruentipennis</i>	<i>Salix</i>	Western Cuba
<i>C. schaefferi</i>	<i>Salix</i>	California, Manitoba
<i>C. blaisdelli</i>	<i>Salix</i>	Alaska
<i>C. engelharati</i>	<i>Salix</i>	Alaska
<i>Chrysolina flavomarginata</i>	<i>Aster multiflorus</i> ,	Central Alberta,
<i>vidua</i>	<i>Artemisia</i> sp.	British Columbia
<i>Chrysolina hudsonica</i>	<i>Achillea</i> , <i>Tanacetum</i>	Port au Choix, Manitoba
<i>Entomoscelis adonidis</i>	Turnip	America
<i>Gastroidea polygoni</i>	<i>Polygonum</i> , Sugar-beet	America, Europe
<i>G. viridula</i>	Dock, Sorrel	England
<i>G. cyanea</i>	Grape—vines	California
<i>Leptinotarsa decemlineata</i>	Potato	America, Europe
<i>Phaedon armoraciae</i>	Crucifers	Europe
<i>P. assamensis</i>	Mustard	India, Assam
<i>P. cochleariae</i>	Mustard, Horse-radish	Europe



<i>P. viridis</i>	Watercress	America	<i>Epitrix subcrinita</i>	Tomatoes,	British Columbia
<i>P. incertum</i>	Turnip	Japan		potatoes	
<i>Paraphaedon tumi ulus</i>	Potato and Umbellifers	England	<i>E. fuscula</i>	Potatoes	Concord, U.S.A.
			<i>E. cucumeris</i>	Potatoes,	North America
<i>Phaedonia areata</i>	Cotton	Africa		tomatoes	
<i>Paropsides duodecimpustulata</i>	Pear	India, Shillong	<i>E. nigroaenea</i>	Potatoes	South America
<i>Phytodecta viminalis</i>	Willow	Europe	<i>E. parvula</i>	Tobacco	U.S.A.
<i>P. fornicatus</i>	Lucerne	Russia	<i>Haltica engstroni</i>	<i>Spiraea ulmaria</i>	N. Russia, Finland, Sweden
<i>P. vulgatissima</i>	Osier	France		Grape-vine	France, Spain
<i>P. vitellinae</i>	<i>Salix</i>	Europe	<i>H. ampelophaga</i>	Oak, climbing	Holland, Russia
<i>Zygogramma exclamationis</i>	Sunflower	America	<i>H. erucæ</i>	roses, strawberries	

TABLE 2.—ECONOMIC IMPORTANCE OF THE HALTIGINÆ

Pest species	Host plants	Localities			
<i>Aphthona flaviceps</i>	Flax	Poltava and Russia	<i>H. foliacea</i>	Apple, grape	Arizona, U.S.A.
<i>A. euphorbiae</i>	Flax	Poltava and Russia	<i>H. chalybea</i>	Grape-vine	Ontario, Canada
<i>A. nonstriata</i>	Leaves of iris	Russia	<i>H. ignita</i>	Strawberry	Canada
<i>A. lamprocyanea</i>	Eurphorbiaceae, <i>Croton</i> species	West Indies	<i>H. probata</i>	Wild rose, strawberry	British Columbia to California
<i>Argopistis oleae</i>	Olive trees	Cape Province, South Africa	<i>H. carinata</i>	Grape-vine, desert primrose	South California
<i>A. sexvittatus</i>	Olive trees	Cape Province, South Africa	<i>H. corni</i>	Dog-wood	Maine, U.S.A.
<i>Argopus ahrensi</i>	Artichoke	Europe	<i>H. rosae</i>	Wild rose	Maine, U.S.A.
<i>Blepharida rhois</i>	Sumac ( <i>Rhus</i> )	Virginia, U.S.A.	<i>H. ulmi</i>	Elm	Maine, U.S.A.
<i>Clitea picta</i>	<i>Aegle marmelos</i> (Bael)	India	<i>H. torquata</i>	Blueberry	Maine, U.S.A.
<i>Crepidodera helxines</i>	Willow	Canada	<i>H. pagana</i>	Strawberry	Australia
<i>C. cyanescens</i>	Aconite	Russia	<i>Hemilactica portoricensis</i>	<i>Micropholis curvata</i>	West Indies
<i>C. alpicola</i>	Aconite	Russia	<i>Luperomorpha weisei</i>	Mango	Bengal
<i>C. rufipes</i>	Peach trees, peas	Kentucky, U.S.A. and Europe	<i>Longitarsus parvulus</i>	Flax	Ireland
<i>C. aurata</i>	Willow	England and Continental Europe	<i>L. ater</i>	Flax	Ireland
<i>C. erythropus</i>	Peach trees	North America	<i>L. nigripennis</i>	Pepper	India
<i>C. costatipennis</i>	Cacao	Cameroons	<i>Nisotra uniforma</i>	Cotton	S. Nigeria
<i>Chaetocnema hortensis</i>	Cereals, hemp	European Russia	<i>Podagraca malvae</i>	<i>Althaea officinalis</i> (marsh mallow), <i>A. rosea</i> (holly-hock) and medicinal plants	Crimea
<i>C. breviscula</i>	Wheat, cereals	Russia	<i>Podontia quatuordecim-punctata</i>	<i>Spondias magnifera</i> , <i>S. dulcis</i> , <i>Ficus elastica</i>	India, Kuala Lumpur
<i>C. concinna</i>	Mangold-wurzel (Beta), rhubarb, hops	Russia, Ireland, and Sweden	<i>Phyllotreta pusilla</i>	Cabbage, radish	U.S.A.
<i>C. apricaria</i>	Sweet potato, tomato	Jamaica, Porto Rico	<i>P. nemorum</i>	Soy bean, turnip, hops, peas, vetches, hemp	Germany, England, Russia
<i>C. confinis</i>	Maize	Virginia, U.S.A.		Cress, radish, turnip, Cabbage	Canada
<i>C. pulicaria</i>	Maize	Virginia, U.S.A.	<i>P. sinuata</i>	Radish, turnip	U.S.A.
<i>C. denticulata</i>	Maize	Virginia, U.S.A.	<i>P. vittata</i>	Turnip, hemp	Denmark, Russia
<i>C. aridula</i>	Oats, grain crops	France, Russia	<i>P. atra</i>	Mustard	Astrachan, Russia
<i>C. amazona</i>	Sweet potato	Barbados	<i>P. schreineri</i>	Potato	Ireland
<i>C. basalis</i>	Rice	India	<i>P. affinis</i>	Peas, vetches, cabbage	Prussia, Sweden
<i>C. ectypa</i>	Sudan grass, desert corn	U.S.A.	<i>P. nigripes</i>	Peas, vetches	Prussia
<i>C. tibialis</i>	Beet	France	<i>P. cruciferae</i>	Peas, vetches, cabbage	Prussia, Russia
<i>C. pusaensis</i>	Boring stems of millet ( <i>Panicum miliaceum</i> )	India	<i>P. undulata</i>	Horse-radish ( <i>Cochlearia</i> ), cruciferous plants	Russia, Canada
<i>C. concinnipennis</i>	Boring stem of seedling paddy ( <i>Oryza</i> )	India	<i>P. armoraciae</i>	Spring corn, maize	Denmark, England, Russia
<i>Cercyonia citri</i>	Citrus plants	Gold Coast	<i>P. vittula</i>	Mulberry tree	Formosa
<i>Disonycha glabrata</i>	<i>Amaranthus</i> spp.	U.S.A.	<i>P. sinuata</i>	Hops, clover, tomatoes, farm crops, netles, chickweed	U.S.A. Canada, Vancouver
<i>D. maritima</i>	Sugar-beet	California	<i>Psylliodes punctulata</i>	Soy bean, rape, cabbage, radish	Germany, Bessarabia, Sweden, France
<i>D. varicornis</i>	<i>Opuntia leptocaulis</i>	North America		Hemp, hops	Bohemia, Russia
<i>D. xanthomeloena</i>	Spinach	North America			
<i>D. triangularis</i>	Beet	North America			
<i>D. mellicollis</i>	Beet	North America			
<i>D. caroliniana</i>	Beet	North America			
<i>D. laevigata</i>	Maize	Jamaica	<i>P. chrysocephala</i>		
<i>D. quinquevittata</i>	<i>Solidago squarrosa</i>	Nova Scotia	<i>P. attenuata</i>		



<i>P. affinis</i>	<i>Lycium,</i> <i>Hyoscyamus,</i> <i>Atropa, Solanum</i>	Europe
<i>P. napi</i>	Peas, vetches, Cruciferae	Russia
<i>P. picina</i>	Cereals, barley	Russia
<i>Systema blanda</i>	Melon, potato, carrot, beet, clover	North America
<i>S. taeniata</i>	Vegetables, maize	Virginia
<i>S. marginalis</i>	Forest and shade trees	North America
<i>S. frontalis</i>	Potato, beans, young grapes, asters, Chrysan- themums	Toronto, Canada
<i>S. hudsonias</i>	Sugar-beet, potato, maize, beans	North America
<i>Zomba gossypii</i>	Cotton	Nyasaland

5. Each elytron with five longitudinal series of round impunctate areas  
*C. exanthematica* (Weidemann, 1821) Maulik, 1926

Elytron with no such areas 6

6. Elytra all round the outer margin bordered with red-brown  
*C. vishnu* Hope, 1831

Elytra on the outer margin with no such border 7

7. Insect with brilliant metallic colours and with a longitudinal purple or steel-blue stripe on each elytron 11

Insect with no such colouring, or at least without the stripes 8

8. Colour violet mixed with green; punctures on the clypeus finer than the vertex; punctures on the elytra are not arranged in rows but have tendency to form rows

*C. kamali*, new species

Colour deep blue or violet; punctures on the vertex finer than those on the clypeus; punctures on the elytra arranged in rows

*C. coelestina* (Baly, 1879) Maulik, 1926

Insects with no such combination of characters 9

9. Pronotum almost flat in the middle and with hardly any longitudinal depression on either side 10

Pronotum distinctly convex in the middle and impressed on either side, where the punctures are larger and deeper; body elongate; elytral punctures fine, more or less arranged in irregular rows, upper side smooth  
*C. karachia* Maulik, 1926

10. Prothorax and elytra concolorous

*C. inconstans* (Weidemann, 1823) Maulik, 1926

Prothorax and elytra differently coloured

*C. conglomerata* Maulik, 1926

11. Elytron with two longitudinal, brilliant cupreous bands enclosing a deep purplish-blue band  
*C. bella* (Jacoby, 1890) Maulik, 1926

Elytron with six longitudinal bands from sutural to lateral margin being purple (narrow), green (narrow), purple (broad), green (narrow), violet (broad) and green (narrow)

*C. punjabiensis*, new species

**Key to the Genera and Species of the Chrysomelinae of West Pakistan**  
(Maulik, 1926)

1. Front coxal cavities open 2

Front coxal cavities closed behind 14

2. Claws throughout simple or angularly dilated at the base 3

Claws split or cut in the middle; epipleuron horizontal; tibiae with no such spine or tooth  
*Phyllodecta* Kirby, 1837

body elongate; colour shining blue; two basal segments of the antennae brown, stained above with piceous, the other segments piceous or black; the two apical abdominal sternites may be brown  
*P. abdominalis* (Baly, 1878) Maulik, 1926

3. Epipleura of the elytra on the inner margin entirely, or at least towards the apex, with a row of cilia-like bristles 4

Epipleura without cilia-like bristles 12

4. Metasternal process bordered all round by a deep furrow, the sides as well as the apex  
*Chrysolina* Motschulsky, 1860 5

Metasternal process with a furrow at the sides only, the apex not included; insects large, 11-14½ mm, elytra with four pairs of longitudinal rows of punctures and no postbasal depression  
*Paralina* Baly, 1859

abdominal sternites, or at least the greater part of them, generally metallic green  
*P. indica* (Hope, 1831) Baly, 1859



12. Insects small, 5-9 mm., convex, ovate, coloration with metallic shimmer; elytral punctation with a tendency to form rows

*Plagioderia* Redtenbacher, 1845

ground-colour blue or green, underside blue black

*P. versicolora* (Laicharting, 1781)  
Baly, 1878

Insects large, about 11 mm., elongate, coloration without metallic shimmer; elytral punctation generally confused

*Chrysomela* Linnaeus, 1758 13

13. Elytra bright red in the living insect, light brown to red brown in dried specimens, without metallic reflections *C. populi* Linnaeus, 1758

Elytra metallic greenish or occasionally violaceous, with aneous reflections

*C. chlorina* Maulik, 1926

14. Claws split or cut in the middle 15

Claws simple throughout or slightly angularly dilated near the base 18

15. Antenna very much dilated towards the apex, eyes deeply emarginate; each claw divided into two parts, the inner one being only slightly smaller *Neolycaria*, **new genus** 16

Antenna less dilated towards the apex; eyes entire or slightly emarginate; each claw divided into two parts, the inner one being nearly half the length of the other *Anwarullahia*, **new genus** 17

16. Unicolorous, metallic blue  
*N. farooqi*, **new species**

Bicolorous, elytra shining red, each elytra with a blue spot on the anterior portion, apex blue  
*N. ahmadi*, **new species**

17. Antenna with its apical segment rounded and broad; apical segment of the maxillary palp slightly swollen; eyes slightly emarginate; elytron shining red, only the suture lined with metallic bluish green; elytron not vittate; front tibiae strongly curved; appendage of the claw short, broad; pygidium longitudinally channelled  
*A. nasiri*, **new species**

Antenna with its apical segment pointed and long; apical segment of the maxillary palp long and narrow; eyes entire; elytron with longitudinal vitta of bluish-green colour; front tibiae straight or curved; appendage of the claw long, pointed and narrow; pygidium simple

*A. lahorensis*, **new species**

18. Insect with wings; apical segment of the maxillary palp neither conical nor pointed but broad and rounded; antennae slightly thickened towards the apex, not very long; prothorax broader than long, front margin concave with its ends distinctly extending in front; elytra not broadened at the base, punctures not arranged in paired rows

*Neopotanina*, **new genus**

*N. hamidi*, **new species**

Insects apterous; body elongate, considerably narrowed behind *Pseudolina* Jacoby, 1896 19

19. Larger (8 mm.); entirely metallic greenish or brownish aeneous

*P. indica* Jacoby, 1896

Smaller (5 mm.); shining dark brown with bluish tinge  
*P. rama* Maulik, 1926

Note: The species, *Chrysolina perforata* (Redtenbacher, 1848) Maulik, 1926, recorded from Kashmir has not been incorporated in the above key.

#### Key to the genera and species of the Halticinae of West Pakistan

(Maulik, 1926)

1. Antenna nine-segmented

*Nonarthra* Baly, 1862

fourth to the eighth antennal segments thickened, but the flattening is not accentuated; coloration very variable  
*N. variabilis* Baly, 1862

Antenna ten-segmented

*Psylliodes* Latreille, 1829 2

Antenna eleven-segmented 3

2. Body blue, without brassy tinge, broader at the middle; the feeble interstitial punctures less numerous  
*P. plana* Maulik, 1926

Body black, with brassy sheen, narrower; the feeble interstitial punctures more numerous

*P. tenebrosus* Jacoby, 1896

3. Pronotum and elytra, or at least the elytra, pubescent; insect always considerably less than 7 mm long; punctures on elytra confused; the hairs are addressed to the body; pronotum hairy  
*Hespera* Weise, 1889 4

Pronotum and elytra not pubescent 5

4. Punctures on the upper surface coarse; antenna as long as the body

*H. krishna* Maulik, 1926



- Punctures finer; antenna extending to the middle or a little distance beyond the middle of the elytra; head punctures as the pronotum and equally covered with pubescence  
*H. nigripes* Maulik, 1926
5. Claw-segment of posterior tarsi greatly dilated 6  
 Claw-segment of posterior tarsi not greatly dilated 7
6. Pronotum with a more or less deep impression on either side along its basal margin and a short longitudinal impression on each elytron within the humerus  
*Philopona* Weise, 1903  
 each elytra with a longitudinal stripe along the middle  
*P. signata* (Duvivier, 1892)  
 Maulik, 1926  
 Pronotum and elytra without such impressions  
*Hyphasoma* Jacoby, 1903
- antennae as long as, or exceeding, threefourths of the body  
*H. nigricornis* (Baly, 1878)  
 Maulik, 1926
7. Front coxal cavities closed or almost closed behind 8  
 Front coxal cavities open behind 14
8. Elytral punctures completely confused; apical segments not flattened, antennae hardly reaching the humerus  
*Glaucosphaera* Maulik, 1926  
 body subrotundate, shining dark blue with violet reflection, scutellum black  
*G. cyanea* (Duvivier, 1892)  
 Maulik, 1926
- Elytral punctures either quite regularly arranged in longitudinal rows, or at least there is sufficient indication of the punctures tending to form longitudinal rows 9
9. Prothorax deeply constricted behind  
*Eudolia* Jacoby, 1885  
 head, pronotum and scutellum dark chestnut-brown to black; legs and the four basal segments of the antennae yellow-brown; the other segments of the antennae piceous; elytra greenish-blue or violet  
*E. himalayensis* Maulik, 1926  
 Prothorax not constricted behind 10
10. In the middle and hind legs the tibia has excavation on its outer edge, extending from the apex upwards for a certain distance, and set with bristles; body small (1½-3 mm), ovate, narrowed in front and behind; elytra punctate-striate  
*Chaetocnema* Stephens, 1831 11
- No such combination of characters 13
11. Surface of head granulate; pronotum very closely punctate, with the interstices finely granulate 12  
 Surface of head not granulate; pronotum more sparsely punctate, with interstices not granulate  
*C. stricta* Maulik, 1926
12. Colour greenish with a slight bronzy tinge  
*C. cognata* Baly, 1877  
 Colour deep bronze or aeneous, with little definitely greenish tint; interstices between the rows of punctures on the elytra, particularly those near the scutellar row, wrinkled and slightly depressed behind the scutellum; all the femora dark  
*C. alticola* Maulik, 1926
13. Body massive, (8-17 mm long, the largest among these genera), broad oblong; prosternum squarely truncate behind, with the end at the same level as the mesosternum, which meets the truncate end of the prosternum  
*Ophridia* Chapuis, 1875  
 elytra chequered, irrorated or speckled with red-brown and dull yellow, the irrorations sometimes forming indistinct oblique bands on the elytra  
*O. marmorea* (Weidemann, 1819) Maulik, 1926
- No such combination of characters; elytral punctures extremely regularly arranged in longitudinal rows which are not paired, all nearly equidistant from each other  
*Xuthea* Baly, 1865  
 colour dull blue, sometimes mixed with green or pure metallic blue; tibiae and tarsi not distinctly brown; pronotum distinctly punctate, with a mixture of coarse and fine punctures  
*X. orientalis* Baly, 1865
14. Pronotum in front, and parallel to the base with a deep impression  
*Haltica* Fabricus, 1775 28  
 Pronotum with no such ante-basal impression 15
15. All the tibiae short, somewhat curved, the front pair with a broad emargination on the outer edge nearer the apex  
*Pentamesa* Harold, 1876  
 elytra brown or somewhat lighter, with black patches  
*P. duodecimmaculata* Harold, 1876
- Tibiae not so constructed 16



16. Antennae widely separated at their bases, which almost touch the inner margins of the eyes; antennae short, not reaching beyond the base of the pronotum; large insects ( $3\frac{1}{2}$  mm long 2 mm broad) *Parathrylea* Duvivier, 1892  
colour shining black; body oblong ovate, narrowed behind; the four basal segments of the antennae, the prothorax, the apical part of the elytra and three ventral segments of the abdomen, yellow; the elytra have a greenish tinge  
*P. apicipennis* Duvivier, 1892
- Antennae not so widely separated; their bases, though not contiguous, are well away from their inner margins of the eyes 17
17. Posterior tibiae with their upper surface flat or slightly channelled near the apex 18
- Posterior tibiae deeply channelled; insects larger, elongate insects (more than 3 mm long), with the lateral borders of the pronotum narrowly dilated or margined  
*Sebaethe* Baly, 1864
- head and pronotum pitch-brown to black, elytra yellow-brown *S. troglodytes* (Olivier, 1808)  
Maulik, 1926
18. First segment of posterior tarsi very long, almost as long as, or at any rate never less than half the length of the tibia  
*Longitarsus* Latreille, 1829 19
- First segment of posterior tarsi always less than half the length of the tibia 26
19. Elytra shining blue  
*L. cyanipennis* Bryant, 1924
- Elytra shining black; large insects (3 mm long); third segment of antennae distinctly longer than second *L. almora* Maulik, 1926
- Elytra differently coloured 20
20. Suture stained distinctly darker than the colour of the elytra 21
- Suture not so stained 22
21. Small insects ( $1\frac{1}{2}$  mm long); punctures on the elytra close and arranged with some regularity in longitudinal rows  
*L. hina* Maulik, 1926
- Large insects ( $2\frac{1}{2}$  mm long); punctures on the elytra confused *L. belgaumensis* Jacoby, 1896
22. Punctures on the elytra bold, deep and large 23
- Punctures on the elytra distinctly fine or almost obsolete 24
23. Large insects ( $2\frac{3}{4}$  or nearly 3 mm long); elytral punctures confused  
*L. gavira* Maulik, 1926
- Small insects; elytral punctures arranged to certain extent in close longitudinal rows; body completely piceous, with antennae and legs (except the posterior femora) brown  
*L. malina* Maulik, 1926
24. Body always broad and large ( $3-3\frac{1}{2}$  mm long and 2 mm broad); colour always brownish-yellow or pale brown 25
- No such combination of characters; colour dark brown; clypeus and apices of the posterior femora black; colour of apical segments of antennae darker than that of basal segments; wingless.  
*L. championi* Maulik, 1926
25. Elytra apparently impunctate; scutellum black; sides of prothorax straight  
*L. recticollis* Jacoby 1898
- Elytra finely and closely punctate; scutellum not black; sides of prothorax rounded  
*L. gola* Maulik, 1926
26. Posterior tibiae depressed at the apex, which is divided into two very short lobes, each usually ending in a short spinule  
*Aphthona* Chevrolat, 1842 27
- Posterior tibiae not depressed at the apex, which is rounded and furnished with a small spinule placed in the middle of the terminal border  
*Phyllotreta* Stephens, 1839
- colour black with a bronzy tint; four antennal segments in the male enormously expanded  
*P. oncera* Maulik, 1926
27. Colour of upper side yellow-brown; abdomen and the underside black; apices of the femora not darker than their basal parts  
*A. atriventris* Maulik, 1926
- Colour of upper side shining reddish brown; the two basal segments of the antennae brown, the third partly so, the rest black; scutellum black to piceous; elytra black, in some specimens black of elytra tends to become brown; large insects



(3½ mm long); pronotum reddish brown, shoulders not prominently convex

*A. hugeli* Jacoby, 1900

28. Colour metallic blue

*H. caerulescens* (Baly, 1874)  
Maulik, 1926

Colour shining greenish-blue

*H. viridicyanea* Baly, 1874

Colour dark blue

*H. cyanea* Weber, 1801

Note: The following species, not included in the above key may be found in West Pakistan:

*Apthona punctata* Shukla, S.P., 1960, Agr. Univ. J. Res. (Sci.), 9, 76 (N.W. Himalaya).

*Chaetocnema rahlensis* S.P. Shukla, 1960, *ibid.*: 77 (N.W. Himalaya)

*Haltica bicosta* S.P. Shukla, 1960, *ibid.*, 78 (N.W. Himalaya)

*H. hemensis* S.P. Shukla, 1960, *ibid.* 79 (N.W. Himalaya)

*H. indica* S.P. Shukla, 1960, *ibid.* 80 (N.W. Himalaya)

*Podagrica alticus* S.P. Shukla, 1960, *ibid.* 84 (N.W. Himalaya)

*Phyllotreta subtilis* Kurduimov, N.V. and Znamenski, R.V., 1917, Proc. Poltava Agr. Expt. Sta., Poltava 29 (Simla).

**Key to the Genera and Species of the Chrysomelinae of East Pakistan**  
(Maulik, 1926)

- |  |    |
|--|----|
| 1. Front coxal cavities open behind  | 2  |
| Front coxal cavities closed behind; insects with wings   | 21 |
| 2. Claws throughout simple or angularly dilated at the base  | 3  |
| Claws split or cut in the middle   | 16 |
| 3. Epipleura of the elytra on the inner margin entirely, or at least towards the apex, with a row of cilia like bristles | 4  |
| Epipleura without cilia like bristles  | 14 |

4. Antennae comparatively slender, distinctly passing beyond the base of the pronotum 5

Antennae comparatively, stouter, just reaching or not reaching the base of the pronotum; body not spherical, the contrast between the thickened apical segments of the antennae and the more slender basal segments not strongly marked

*Eumela* Baly, 1875

elytra light yellow-brown to dark red brown; without any metallic shimmer

*E. cyanicollis* (Hope, 1831)  
Duvivier, 1891

5. Metasternal process bordered all round by a deep furrow, the sides as well as the apex

*Chrysolina* Motschulsky, 1860 6

Metasternal process with furrow at the sides only, the apex not included; insect large, 11-14½ mm, non-metallic, elytra with four pairs of longitudinal rows of punctures and no postbasal depression

*Paralina* Baly, 1859 13

6. Elytra with five longitudinal series of round impunctate areas on each side

*C. exanthematica* (Wiedemann, 1821) Maulik, 1926

Elytra with no such areas 7

7. Elytra all round the outer margin bordered with red brown

*C. vishnu* (Hope, 1831) Maulik 1926

Elytra with no such border 8

8. Each elytra with four well-defined, paired rows of punctures, the punctures in each row closely placed and regularly arranged and the interstices very finely punctate; body oblong, parallel-sided; elytral punctures strongly impressed

*C. manipurensis* Maulik, 1926

No such combination of characters 9

9. Insect large, length 10-11 mm, breadth 6-7 mm; black with aeneous sheen on the upper side; scutellum blue

*C. coerulipes* Gemminger & Harold, 1874

Insect always smaller and with no such combination of characters 10

10. Pronotum almost flat in the middle and with hardly any longitudinal depression on either side 11



- Pronotum distinctly convex in the middle and impressed on either side, where the punctures are larger and deeper 12
11. Prothorax and elytra concolorous  
*C. inconstans* Wiedemann, 1823
- Prothorax and elytra differently coloured  
*C. conglomerata* Maulik, 1926
12. Elytra very thickly punctate, the punctures indistinctly arranged in rows and the surface of the anterior portion of the elytra indistinctly wrinkled  
*C. stevensi* Baly, 1862
- Elytra not very thickly punctate, and with no wrinkling of the surface of the anterior portion  
*C. aurata* Suffrian, 1851
13. Abdominal sternites, or at least the greater part of them, generally metallic green  
*P. indica* (Hope, 1831) Baly, 1859
- Abdominal sternites, except the first, reddish brown  
*P. fallaciosa* Stal, 1862
14. Elytra with its base twice as broad as width of prothorax  
*Agasta* Hope, 1840  
the ground-colour varies from pale yellow-brown to dark brown; blue-black spots and patches of different sizes and shapes are observed: a spot on the depression in the centre of the upper surface of the head, two semilunar patches opposing each other and three other small spots—one central and two lateral on the pronotum, entire upper surface of the scutellum, eight large patches on each elytra  
*A. formosa* Hope, 1840
- Elytra with its base not so broad 15
15. Insects small 5-9 mm., convex, ovate, coloration with metallic shimmer, elytral punctuation with a tendency to form rows  
*Plagiodes* Redtenbacher, 1845  
colour of elytra greenish-bronze, rest of the body dark brown or its paler shades  
*P. miniatcollis* (Hope, 1831) Maulik, 1926
- Insects large, about 11 mm, elongate, coloration without metallic shimmer, elytral punctuation generally confused  
*Chrysomela* Linnaeus, 1758  
elytra bright red in the living insect, light brown to red-brown in dried specimens, without metallic reflections  
*C. populi* Linnaeus, 1758
16. Epipleuron vertical  
*Paropsides* Motschulsky, 1860 17
- Epipleuron horizontal, tibiae furnished externally with a spine or tooth  
*Phytodecta* Kirby, 1837 20
17. Elytra on each side has six large, roundish, light brown patches on a red-brown ground colour  
*P. paradalis* Jacoby, 1892
- No such markings 18
18. Pronotum with three roundish black patches and each elytra with a pattern of sixteen black patches  
*P. duodecimpustulata* var. *heiroglyhica*, Gebler, 1825
- No such markings 19
19. Body more convex and larger, length 11-12 mm, breadth 8 mm, generally with four black spots on the pronotum and a few on the elytra; elytral punctures generally irregular  
*P. nigropunctata* Jacoby, 1892
- Body more elongate, length 10 mm, breadth 7 mm, without any markings at all; punctures arranged in ten rows on each elytra  
*P. chennelli* Baly, 1879
20. Insect opaque  
*P. siva* Maulik, 1926
- Insect shining  
*P. manipuria* Maulik, 1926
21. Punctures on the elytra irregularly arranged in longitudinal series; colour reddish-piceous; underside piceous, shining  
*P. assamensis* (Baly, 1879) Jacoby, 1896
- Punctures on the elytra more or less arranged in rows; colour shining brown, underside fuscous, antennae and legs black  
*P. collaris* Weise, 1905

**Key to the Genera and Species of the  
Halticinae of East Pakistan**  
(Maulik, 1926)

1. Antenna nine-segmented  
*Nonartha* Baly, 1862  
four to the eighth antennal segments thickened but the flattening is not accentuated; coloration very variable  
*N. variabilis* Baly, 1862
- Antenna ten-segmented  
*Psylliodes* Latreille, 1829 2
- Antenna eleven-segmented 3
2. Interstices costate, at least towards the apex  
*P. bretteinghami* Baly, 1862



- Interstices costate through out  
*P. shira* Maulik, 1926
3. Pronotum and elytra, or at least the elytra, pubescent; insect always considerably less than 7 mm long; punctures on elytra confused; the hairs are adpressed to the body; pronotum hairy  
*Hespera* Weise, 1889 4
- Pronotum and elytra not pubescent 7
4. Upper surface bluish-green; elytral punctures large  
*H. cyanea* Maulik, 1926
- Upper surface differently coloured; punctures smaller 5
5. General colour black, legs reddish-brown  
*H. rufipes* Maulik, 1926
- General colour black, legs also black 6
6. Head granulate, not covered with pubescence  
*H. sericea* Weise, 1889
- Head as punctate as the pronotum and equally covered with pubescence  
*H. nigripes* Maulik, 1926
7. Claw-segment of posterior tarsi greatly dilated 8
- Claw-segment of posterior tarsi not greatly dilated 12
8. Elytral epipleura extraordinarily broad; antennae long; surface of pronotum somewhat depressed, its margins flattened or slightly concave  
*Hyphasis* Harold, 1877  
 reddish brown, sometimes much lighter, subnitid; vertex of head blue-black, a large elongate blue patch common to both elytra  
*H. magica* Harold, 1877
- Elytral epipleura not so broad, antennae not so long, pronotum convex 9
9. Pronotum with a more or less deep impression on either side of the pronotum along its basal margin and a short longitudinal impression on each elytra within the humerus  
*Philopona* Weise, 1903
- each elytra with a longitudinal stripe along the middle  
*P. signata* (Duvivier, 1892)  
 Maulik, 1926
- Pronotum or the elytra with no such impressions  
*Hyphasoma* Jacoby, 1903 10
10. General colour testaceous, pronotum and elytra similarly and strongly punctate, upper side of apex of posterior femora black; length 5 mm.  
*H. femoralis* Jacoby, 1889
- No such combination of characters 11
11. Length never less than 7½–9 mm; colour pale brown, with the elytra sometimes darker; elytral punctures not raised  
*H. indica* Baly, 1879
- Length always less than 7½ mm; colour pale flavous; eighth distal segments of the antennae black; third segment of the antennae shorter than fourth; antennae extending to the middle of the body  
*H. parvula* (Jacoby, 1884)  
 Maulik, 1926
12. Front coxal cavities closed or almost closed behind 13
- Front coxal cavities open behind 33
13. Elytral punctures completely confused 14
- Elytral punctures either quite regularly arranged in longitudinal rows, or at least there is sufficient indication of the punctures tending to form rows 16
14. Form more or less round, strongly convex 15
- Form oblong, not strongly convex; second and third segment of the antennae very small, globular, and equal; humerus not strongly pronounced; antennae not hairy *Micraphthona* Jacoby, 1900  
 black, legs fulvous; the three basal segments of the antennae fulvous; apical half of the posterior femora piceous  
*M. nigrita* Jacoby, 1900
15. Antennae moderately long, extending to about the middle of the elytra  
*Euphitrea* Baly, 1875  
 elytra brown, with a metallic bronzy sheen  
*E. foveicollis* Jacoby, 1893
- Antennae extending to the base of the pronotum or a little distance beyond; apical segment not flattened  
*Glaucosphaera* Maulik, 1926  
 body subrotund; dorsal surface very shining dark blue with violet reflections, ventral surface black mixed with purple; scutellum black; the four basal segments of the antennae yellow brown  
*G. cyanea* (Duvivier, 1892)  
 Maulik, 1926
16. Prothorax deeply constricted behind  
*Eudolia* Jacoby, 1885 17
- Prothorax not constricted behind 18



17. Four basal segments of the antennae yellow-brown; head, pronotum and scutellum dark chestnut brown to black; elytra greenish-blue or violet; underside dark tch-brown  
*E. himalayensis* Maulik, 1926

Six basal segments of the antennae in the female and two basal segments in the male yellow-brown; upper side blue, sometimes tinged with violet; underside black  
*E. nila* Maulik, 1926

18. In the middle and hind legs the tibia has an excavation on its outer edge, extending from the apex upwards for a certain distance, and set with bristles; body small (1½-3 mm); ovate, narrowed in front and behind; elytra punctate-striate  
*Chaetocnema* Stephens, 1831 19

No such combination of characters 20

19. Interstices between the longitudinal rows of punctures on the elytra very narrow, the rows being close to each other and the punctures themselves being larger, and sometimes more or less confused on the disc; length always less than 3 mm; punctures less strong  
*C. concinnipennis* Baly, 1877

Interstices broad and striae regular; colour greenish with a slight bronzy tinge  
*C. cognata* Baly, 1877

20. Body massive, large (8-17 mm long, the largest among these genera), broad, oblong; colour of the upper side either uniform red-brown, or with black or darker or lighter brown patches or spots and patches arranged transversely on a brown background, or much chequered, irrorated, or speckled with black or brown spots; without any transverse impression at the basal margin of the pronotum 21

No such combination of characters 27

21. Prosternum highly elevated; the anterior projection of the mesosternum fits into an emargination, depression or cavity of the prosternum  
*Podontia* Dalman, 1827 22

Prosternum squarely truncate behind, with the end at the same level as the mesosternum, which meets the truncate end of the prosternum  
*Ophridia* Chapuis, 1875 25

22. Upper side of one uniform colour, without markings 23

Upper side with markings 24

23. Upper side black  
*P. rufocastanea* Baly, 1865

Upper side yellow  
*P. pitalohita* Maulik, 1926

24. The two elytra together have fourteen black spots, some of which fuse and form bands across each elytra; in some varieties these bands are very broad and the colour pitch brown  
*P. quatuordecimpunctata*  
(L. 1767) Baly, 1862

The two elytra together have ten black spots, some of which by fusing often form one band across the middle of each elytra  
*P. affinis* (Grondal, 1808)  
Sturm, 1843

25. Elytra chequered, irrorated or speckled with red-brown and dull yellow, the irrorations sometimes forming indistinct oblique bands on the elytra  
*O. marmorea* (Wiedemann, 1819)  
Maulik, 1926

Elytra with yellow spots on a red-brown background 26

26. Yellow spots, approximately thirty-eight in number, are present on the alternate interspaces on the inner part of the elytral surface  
*O. flavopustulata* (Baly, 1879)  
Maulik, 1926

Yellow spots, approximately ninety-three in number, are present on all the interspaces of the elytral surface  
*O. binduta* Maulik, 1926

27. Pronotum uniformly convex, without any depressions at all 31

Pronotum with a depressed area generally in front of the basal margin 28

28. Ante-basal transverse impression extends almost to the sides of the pronotum and is not definitely terminated by a longitudinal impression on either side; it is interrupted in the middle and thus divided into two depressions, one on each side of the middle line; anterior and posterior angles of the prothorax not produced  
*Gopala* Maulik, 1926

pitch black, with two yellow patches on each elytra  
*G. pita* Maulik, 1926

Ante-basal transverse impression does not extend to the sides and is terminated on each side by a short longitudinal line 29



29. Elytral punctures partially regularly arranged in rows; antebasal impression on the pronotum shallow *Griva Maulik*, 1926
- body elongate convex, colour of head and under-side bluish-black; breast and legs dark blue; abdomen more or less fulvous at their apices; prothorax dark chestnut brown; elytra metallic-blue; scutellum black *G. cyanipennis* (Jacoby, 1900) Maulik, 1926
- Elytral punctures extremely regularly arranged in longitudinal rows; ante-basal impression deep 30
30. Elytral rows of punctures arranged in pairs head finely and sparsely punctate *Pseudodera* Baly, 1862  
*P. orientalis* Baly, 1877
- Elytral rows not in pairs, all nearly equidistant from each other *Xuthea* Baly, 1865  
colour dull blue, sometimes mixed with green or pure metallic blue; tibiae and tarsi not distinctly brown; pronotum, distinct punctate, with a mixture of coarse and fine punctures  
*X. orientalis* Baly, 1865
31. Besides bearing the ordinary punctures the whole of the upper surface is granulate; body oblong not strongly convex *Clitea* Baly, 1877
- insect red-brown with black patches *C. picta* Baly, 1877
- Upper surface not granulate 32
32. Body spheroidal, strongly convex; head with a raised longitudinal area on the vertex; antennae thicker *Neorthaea* Maulik, 1926  
first segment of the posterior tarsi not broad, but elongate *N. micans* (Baly, 1875) Maulik, 1926
- Body not spheroidal, ovate, not strongly convex; small insects, with a short longitudinal impression on each side of the pronotum perpendicular to the basal line; opposite to these impressions there are in some cases similar longitudinal impressions perpendicular to the front margins *Podagrica* Foundras, 1860
- breast and abdominal sternites black *P. cardoni* (Jacoby, 1900) Maulik, 1926
33. In front of and parallel to the base of the pronotum is a shallow or deep impression 52  
No such ante-basal impression on the pronotum 34
34. All the tibiae short, somewhat curved, the front pair with a broad emargination on the outer edge nearer the apex *Pentamesa* Harold, 1876 35  
Tibiae not so constructed 38
35. Elytra black with bluish-green sheen, and with brownish-yellow patches 36  
Elytra brown or somewhat lighter, with black patches *P. duodecimmaculata* Harold, 1876
36. Pronotum reddish brown *P. haroldi* (Baly, 1876) Maulik, 1926  
Pronotum black, with brownish-yellow patches or bands 37
37. Pronotum with three longitudinal stripes, one median and two lateral *P. trigrapha* Maulik, 1926  
Pronotum with two lateral stripes and two-median patches, one basal and the other apical *P. cribellata* Weise, 1895
38. Posterior tibiae with a broad apical projection or spur ending in two principal points; antennae relatively long, with the third segment short *Agropistes* Motschulsky, 1860  
each elytra with three spots triangularly arranged *A. bistrispunctata* Duvivier, 1892  
Posterior tibiae without any such double-pointed spur 39
39. Antennae widely separated at their bases, which almost touch the inner margins of the eyes; large insects ( $3\frac{1}{2}$  mm long, 2 mm broad); antennae short, not reaching beyond the base of the pronotum *Parathyrlea* Duvivier, 1862  
colour shining black; body oblong ovate, narrowed behind; the four basal segments of the antennae, the prothorax, the apical part of the elytra and three ventral segments of the abdomen, yellow; the elytra has a green tinge *P. apicipennis* Duvivier, 1892  
Antennae not so widely separated; their bases, though not contiguous, are well away from the inner margins of the eyes 40
40. Posterior tibiae with their upper surface either flat or slightly channelled near the apex 42  
Posterior tibiae deeply channelled; much larger, elongate insects (more than 3 mm long), with the



- lateral borders of the pronotum narrowly dilated or margined *Sebaethe* Baly, 1864 41
41. Head and pronotum pitch-brown to black, elytra yellow brown  
*S. troglodytes* (Olivier, 1808)  
Maulik, 1926
- No such combination of characters; body with sides more rounded; pronotum more transverse, about twice as broad as long  
*S. patkaia* Maulik, 1926
42. Body hemispherical; first segment of the posterior tarsi normal, *i.e.* very much shorter than the tibia; prosternum large and elevated; mesosternum arched; labrum large  
*Sphaeroderma* Stephens, 1834 43
- Body elongate or ovate; first segment of the posterior tarsi longer in comparison with the tibiae 45
43. Antennae short, only reaching the base of the elytra; colour dark brown or pitchy-brown; pronotum more punctate towards the front and sides  
*S. brevicornis* Jacoby, 1900
- Antennae extending beyond the base of the elytra 44
44. Lower portion of face strongly produced; body broadest at the base of the elytra, narrowing towards the apex; colour shining dark reddish brown  
*S. mandarensis* Jacoby, 1900
- Lower portion of face not strongly produced; body ovate, strongly convex; colour shining dark brown  
*S. varipes* Jacoby, 1889
45. First segment of posterior tarsi very long, almost as long as, or at any rate never less than half the length of the tibia  
*Longitarsus* Latreille, 1829 46
- First segment of posterior tarsi always less than half the length of the tibia 49
46. Elytra shining blue  
*L. cyanipennis* Bryant, 1924
- Elytra shining black; large insect (3½ mm long and about 2 mm broad); body, narrowing somewhat behind the prominent shoulders and then broadening again to a certain extent  
*L. krishna* Maulik, 1926
- Elytra differently coloured 47
47. Suture stained distinctly darker than the colour of the elytra; large insects (2½ mm long); punctures on the elytra confused  
*L. belgaumensis* Jacoby, 1896
- Suture not so stained 48
48. Body always broad and large, (3-3½ mm long and 2 mm. broad); colour pale shining brown; elytra apparently impunctate; scutellum black; sides of prothorax straight  
*L. recticollis* Jacoby, 1898
- No such combination of characters; body always smaller; colour of the elytra red; head and pronotum darker; antennae generally brown, but sometimes the six or seven apical segments are somewhat darker; legs not black but brown, except the apical half of the posterior femora, which is black  
*L. sundara* Maulik, 1926
49. Antennae with its second and third segments always small; posterior edge of elytra sparsely set with very short hairs  
*Luperomorpha* Weise, 1887  
elytra black with a transverse white band behind the middle  
*L. albofasciata* Duvivier, 1892
- No such combination of characters 50
50. Posterior tibiae depressed at the apex, which is divided into two very short lobes, each usually ending in a short spinule  
*Aphthona* Chevrolat, 1842 51
- Posterior tibiae not depressed at the apex, which is rounded and furnished with a small spinule placed in the middle of the terminal border  
*Phyllotreta* Stephens, 1839  
colour metallic bronze with greenish or bluish reflections; posterior part of the surface of the elytra without ribs  
*P. chotanica* Duvivier, 1892
51. Colour of upper side shining yellow brown; only the posterior femora black or deeply piceous; suture not piceous at all  
*A. nigrilabris* Duvivier, 1892
- Colour of upper side metallic green or bluish; underside piceous, antennae and legs light brown  
*A. indica* Jacoby, 1900
52. Third and fourth segments of antennae almost equal to each other in length 53
- Fourth segment distinctly longer than third; ante-basal impression bounded on either side by a short longitudinal impression  
*Lactica* Erichson, 1847  
upper yellowish red  
*L. silacea* Illiger, 1807
53. Ante-basal transverse impression on pronotum shallow  
*Phygasia* Baly, 1876 54



Ante-basal impression deep

*Haltica* Fabricius, 1775

body oblong; colour dark blue above, piceous on the underside; the four or five basal segments of the antennae brownish, the remaining segments piceous; clypeus, labrum and maxillary palpi dark pitch-brown; legs piceous

*H. semipiceus* Jacoby, 1899

54. Elytra unicolorous

55

Elytra of at least two colours; elytra brownish-yellow, with a large ovate sutural black patch common to the two, and their apices black

*P. dorsata* Baly, 1878

55. Colour shining rich brown; apices of femora and tibiae, and tarsi, black; antennae black, underside of first segment brown

*P. hookeri* Baly, 1876

Colour entirely shining brown; tarsi fuscous; antennae, except the four basal segments, darker brown

*P. unicolor* (Olivier, 1808)  
Maulik, 1926

*Sphaeroderma fulvipennis* (Illiger, 1807) Maulik, 1926 is not included in this key but the species is likely to be found in East Pakistan.

Note: The following species, not included in the above key may be found in East Pakistan.

*Xuthea laevicollis* Chen, S.H. 1933, Bull. Mus. Hist. nat. Paris, (2) 5: 381-388 (Sikkim).

*Microcrepis politus* Chen, S.H., 1933, *ibid*: 449-456 (Sikkim).

*Amydus castaneus* Chen, S.H., 1935, Bull. Soc. ent. France, & Paris, 40: 75-80 (Sikkim).

*Crepidodera sublaevis* Chen, S.H., 1935, *ibid*: 76 (Sikkim).

*Jacobyana nigrofasciata* Chen, S.H. 1935, *ibid*: 79 (Sikkim).

*Longitarsus himalyanesis* Chen, S.H., 1935, *ibid*: 78 (Sikkim).

*Lupermorpha metallica* Chen, S.H., 1935, *ibid*: 78 (Sikkim).

*Pentamesa laevicollis* Chen, S.H. 1935, *ibid*: 79 (Sikkim).

*Hespera semicyanea* Chen, S.H., 1935, Sinensia 10:38 (Darjeeling).

*H. lavipes* Chen, S.H., 1939, *ibid*: 39 (Sikkim).

### Descriptions of new Genera and Species of the Chrysomelinae

(1) *Chrysolina kamali*, new species: (Fig. 1).

Body oblong ovate, convex. Colour violet mixed with green.

*Head* broad, sparsely but distinctly punctate, punctures on the clypeus finer than the vertex, the latter depressed. Antenna slender, less than half the length of the beetle, the five basal segments shining, the last six slightly thickened and opaque; first segment thickened, second smallest, almost half the length of the third which is the longest, fourth and fifth almost equal to each other, the rest of the segments equal to each other, the last being a little more elongate and pointed. *Prothorax* a little broader than long, front margin shallowly emarginate, the sides convex from base to apex, basal margin as a whole slightly sinuate, anterior angles rounded, posterior obtuse; surface convex from side to side, uniformly and more or less closely punctate with the same kind of punctures throughout; each side has a longitudinal prominently concave raised strip which is bounded internally by a deep, sharp channel. *Scutellum* triangular, small, with surface punctate. *Elytra* broader at the base than the prothorax, basal margin thickened; the punctures on the elytra are not arranged in rows but have tendency to form rows. *Abdomen* sparsely punctate.

*Length*, 9-10 mm; *breadth* 4-5 mm.

*Holotype*, no locality data (West Pakistan, probably Karachi), at the University of Karachi. *Paratype*, one, no locality data (West Pakistan, probably Karachi), at the University of Karachi.

It is a pleasure to name this species in honour of Dr. Ahmed Kamal of this institution.

2. *Chrysolina punjabiensis*, new species: (Fig. 2)

Body ovate. Colour essentially a combination of shining metallic green, blue and purple as follows: *Head* green with two purplish spots on frons, vertex mixed with blue; eyes light brown; antenna brown mixed with green; maxillary and labial palpi dark brown; ventral surface green mixed with purple; head sparsely and finely punctate.

*Thorax*: pronotum medially with a longitudinal purple line surrounded with green widening at base which runs throughout the base transversely



running into a prominent greenish blue spot on either side near the margin, lateral margins purple, apex purple with two large spots on disc running down to base; upper surface uniformly, finely and rather sparsely punctate.

*Scutellum* triangular, with the apex rounded, surface smooth, sparsely and finely punctate, purple mixed with green. *Elytra* broader at the base than the prothorax, surface uniformly, finely punctate, the punctures not arranged in rows but they have a tendency to form rows: elytron with six longitudinal bands from sutural to lateral margin being purple (narrow), green (narrow), purple (broad), green (narrow), violet (broad) and green (narrow). Legs partly green partly purple, portions of the two colour running into each other.

*Abdomen*: ventral surface generally with margins of sternites green enclosed portions purple; pygidium brown with apex greenish; punctures coarse, sparse.

*Length*, 9 mm; *breadth*, 5 mm.

*Holotype*, West Pakistan, Lahore (Asiya), June 10, 1966, at the University of the Punjab, Lahore.

### 3. *Neolycaria*, new genus

Body oblong ovate. Head: first segment of maxillary palp smallest, second longest, both second and third swollen near apices, fourth narrowed at apex and swollen near or at base. Eyes deeply emarginate. Antenna very much dilated towards the apex. Prothorax distinctly narrower at base than the elytra. *Scutellum* triangular with apex rounded or pointed. *Elytra* uniformly punctate, punctures not arranged in rows but have tendency to form rows. Prosternum wide; front coxal cavities closed. Claws each divided into two parts, the inner one being only slightly smaller.

*Type of the genus: Neolycaria ahmadi*, new species

#### 4. *Neolycaria ahmadi*, new species (Fig. 3)

Body oblong ovate. Colour blue mixed with shining red as follows: head, antennae, pronotum, scutellum legs and abdomen shining bluish violet; elytra shining red. each elytron with a blue spot on the anterior portion, apex blue.

*Head* broad, punctures on the clypeus finer than on the vertex. Fourth segment of the maxillary palp narrowed at apex and swollen at base. Antenna extending beyond the pronotum, first seg-

ment swollen and globular, second segment smallest, third and fourth almost equal in length, from fifth to the eleventh each segment is considerably dilated, with the bases constricted, the dilated portion being opaque and hairy, the last segment is with its apex almost rounded with margins irregular.

*Pronotum* quadrate, almost as broad as long, uniformly and deeply punctate.

*Scutellum* with its apex rounded, smooth, sparsely and very finely punctate.

*Elytra* broader at the base than the prothorax, deeply punctate, interstices with very minute punctures. Tarsi thickly covered with hairs.

*Length*, 11-13 mm; *breadth*, 6-7 mm.

*Holotype*, West Pakistan, Lahore (Naseem), September 24, 1965, at the University of the Punjab. *Paratype*, one, West Pakistan, Lahore (A. Rahim), September 9, 1966, at the University of the Punjab.

It is a pleasure to name this species in honour of Professor Muzaffar Ahmed of the University of the Punjab.

#### 5. *Neolycaria farooqi*, new species (Fig. 4)

Body oblong ovate. Colour metallic blue mixed with green.

*Head*: punctures on the clypeus finer than on the vertex. Fourth segment of the maxillary palp narrowed at the apex and swollen near the base. Antenna extending beyond the pronotum, first segment swollen and globular, second smallest, third nearly twice as long as the second and not swollen at the base unlike the preceding segments, from fourth to the eleventh each segment is considerably dilated at the base the last segment with its apex almost rounded and its margins entire. *Pronotum* quadrate, almost as broad as long, deeply punctate and interstices very minutely punctate but towards the apex it is sparsely punctate. *Scutellum* with its apex pointed, sparsely and very finely punctate, smooth. *Elytra* broader at the base than the prothorax, deeply punctate. Tarsi thickly covered with hairs.

*Length*, 11 mm; *breadth*, 7 mm.

*Holotype*, West Pakistan, Lahore (Ikram), September 8, 1966, at the University of the Punjab. *Paratype*, one, West Pakistan, Gujranwala (Ikram), September 7, 1966, at the University of the Punjab.



It is a pleasure to name this species in honour of Mr. Farooq Ahmed of the Zoological Survey of Pakistan, Karachi.

6. *Anwarullahia*, **new genus**:

Body oblong or ovate, convex. *Head*: apical segment of maxillary palp swollen or narrow. Antenna less dilated towards the apex (than in *Neolycaria*) Eyes entire or slightly emarginate. Pronotum broader than long, deeply punctate. Scutellum triangular with its apex broadly rounded. Elytra nearly or slightly broader than the prothorax, strongly convex, deeply punctate, punctures not arranged in rows. Prosternum wide; front coxal cavities closed. Each claw divided into two parts, the inner one being nearly half the length of the other.

*Type of the genus: Anwarullahia lahorensis*, **new species**.—It is a pleasure to name this genus in honour of Dr. Mohammad Anwarullah of this department in appreciation of his assistance in our research studies.

7. *Anwarullahia lahorensis*, **new species**: (Fig. 5)

Body ovate, strongly convex. Colour of head, prothorax and abdomen black; antennae and legs dark brown; elytra shining red with a longitudinal vitta of bluish green colour.

*Head* broad, deeply and densely punctate. Apical segment of the maxillary palp long and narrow. Antenna with its apical segment pointed and long, first segment globular and thickened, the second is the smallest, more than half the length of the third segment which is constricted at the base and broadened at the apex, third is the longest, fourth and sixth slightly smaller than fifth segment, seventh to tenth segments quite thicker than the other segments, all the segments are constricted at their bases. Eyes entire, convex. *Pronotum* convex, with its anterior margin slightly concave, uniformly, deeply and closely punctate; posterior margin with a distinct ridge. *Scutellum* sparsely punctate. *Elytra* uniformly punctate. Front tibiae straight or curved. Appendage of the claw long, pointed and narrow. Pygidium simple.

*Length*, 5.5–8 mm; *breadth*, 3–4 mm.

*Holotype*, West Pakistan, Lahore (Akbar Ali), August 25, 1964, at the University of the Panjab. *Paratypes*, four West Pakistan, Lahore (Rahim), September 10, 1966; Balakot (A.M. Anwar), August 22, 1955; Lyallpur (Akbar Ali), September 20, 1964—all at the University of the Panjab; and Murree (Sikander), February 3, 1966, at the University of Karachi.

8. *Anwarullahia nasiri*, **new species**: (Fig. 6)

Body oblong ovate. Colour: head, prothorax and abdomen black; antennae and legs dark brown; elytra shining red, only the suture lined with metallic bluish green.

*Head* broad, punctures on the vertex finer than the clypeus. Apical segment of the maxillary palp slightly swollen. Antenna with its apical segment rounded and broad, first segment globular, second segment smallest being almost half the length of third and thickened in the middle, third segment slightly smaller than fourth, fifth segment nearly equal to the fourth but slightly thickened at the base, from sixth to the eleventh segments are more thickened than the preceding segments; all the segments are constricted at their bases. Eyes convex, slightly emarginate. *Pronotum* strongly convex, nearly twice as broad as long, slightly narrowed anteriorly; sparsely punctate. *Scutellum* impunctate. *Elytra* slightly broader at the base than the prothorax, pointed at its apex, the interstices with minute punctures. Front tibiae strongly curved. Appendage of the claw short, broad. Pygidium longitudinally channeled.

*Length*, 8.5 mm; *breadth*, 4.5 mm.

*Holotype*, West Pakistan, P. Bhattian (Nasir), July, 19, 1966, at the University of the Panjab.

The species has been named in honour of the collector of the type specimen, Mr. Nasir.

9. *Neopotanina*, **new genus**:

Body oblong, convex. Head broad; apical segment of the maxillary palp neither conical nor pointed but broad and rounded. Antenna slightly thickened towards the apex, and not very long. Pronotum broader than long, front margin concave with its ends distinctly extending in front. Scutellum triangular with its apex rounded. Elytra broader at the base than the prothorax, not broadened behind the base, punctures not arranged in rows. Front coxal cavities closed. Prosternum wide, metasternum bordered all round with a deep furrow. The third (bilobed) segment the tarsus emarginate; claws simple throughout.

*Type of the genus: Neopotanina hamidi*, **new species**

10. *Neopotanina hamidi*, **new species**: (Fig. 7)

Colour black; elytron with shining, dark elevated, thirty-three rounded spots; abdomen bluish black.



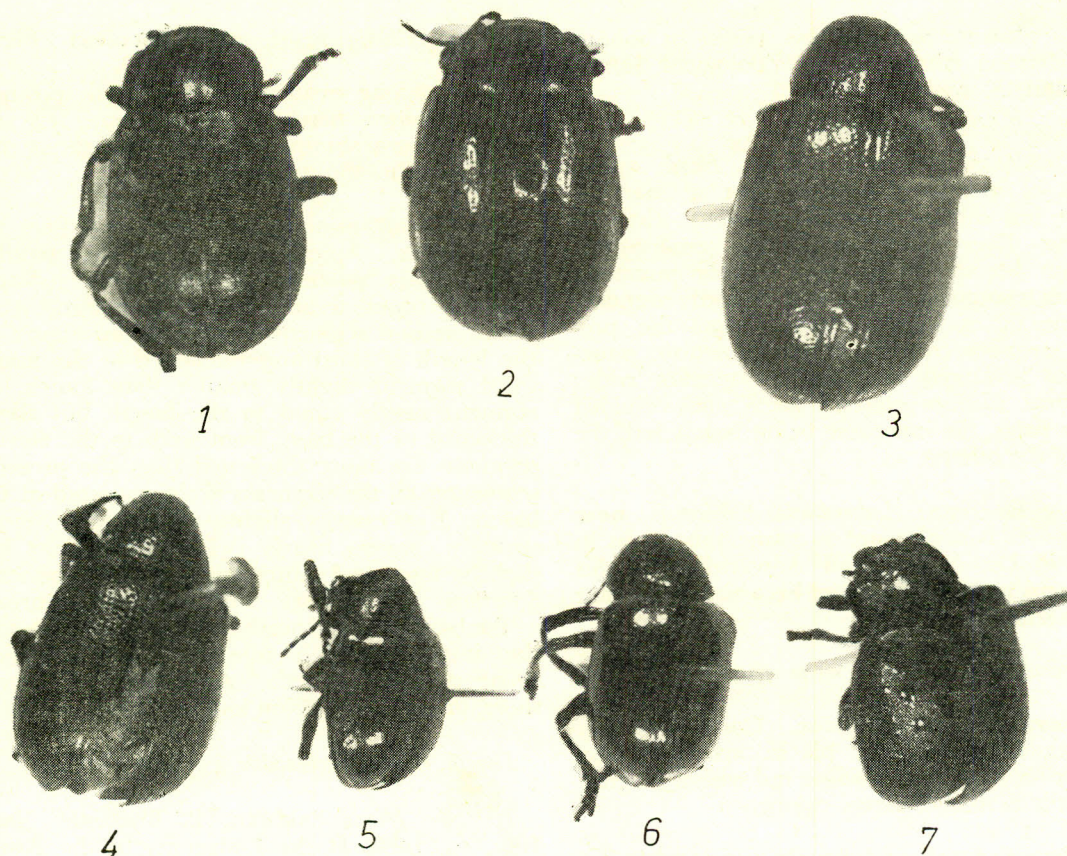


Fig. 1.—*Chrysolina kamali*, *sp. nov.*, paratype, dorsal view. Fig. 2.—*Chrysolina punjabiensis*, *sp. nov.*, holotype, dorsal view. Fig. 3.—*Neolycaria ahmadi* *gen. et sp. nov.*, holotype, dorsal view. Fig. 4.—*Neolycaria farooqi* *gen. et sp. nov.*, holotype, dorsal view. Fig. 5.—*Anwarullahia lahorensis* *gen. et sp. nov.*, holotype dorsal view. Fig. 6.—*Anwarullahia nasiri* *gen. et sp. nov.*, holotype, dorsal view. Fig. 7.—*Neopotania hamidi* *gen. et sp. nov.*, holotype dorsal view.

*Head* essentially uniformly, sparsely punctate. Antenna with its first segment swollen, second smallest, third and fourth segment almost equal, fifth and sixth segments slightly thickened near the base, eighth longer and thicker than seventh segment, ninth segment nearly equal to the eighth segment, remaining segments missing. Eyes convex, entire. Pronotum more thickly punctate at the posterior margin and the sides than at the anterior margin where it is sparsely punctate. *Scutellum* sparsely and very finely punctate. *Elytra* uniformly and thickly punctate. Abdomen sparsely and finely punctate.

*Length*, 9 mm; *breadth*, 6 mm.

*Holotype*, no locality data (West Pakistan, probably Karachi), at the University of Karachi.

It is a pleasure to name this species in honour of Dr. Syed Hamid Mahmood of the University of Karachi.

#### References

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