

## PLUMAGE PIGMENT ABERRATIONS OF BIRDS IN ROMANIA

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### **Abstract**

*In this paper are presented types of aberrations in the colour of plumage, observed by authors in different species of birds in Romania in the period 2000 – 2021. These chromatic aberrations of the plumage were observed in 27 species: albinism, leucism, melanism, dilution. The causes of plumage aberrations are differently*

**Key words:** plumage pigment aberrations, birds, Romania

### **INTRODUCTION**

Data on the colour aberrations of bird feathers in Romania have appeared sporadically in various publications or books ( Dombrowsky, 1946; Linția, 1954 – 1955; Ilie 2013, 2014a,b,c, 2015, 2016a,b,2017a,b,c, 2019, Ilie L.C. & Ilie A.L., 2018, Ilie & Marinescu, 2019, 2020). Two pigments determine the coloration of the birds' feathers: carotenoids and melanins (Fox and Vevers, 1960). The causes of plumage aberrations are differently: genetic mutations, diet, age, disease, parasites and injury ( Guay et al., 2012).

### **MATERIAL AND METHOD**

Plumage pigment aberrations of birds were observed sporadically during excursions or wildlife trips in different areas of Romania in the period 2000 – 2021: Anieş – Maieru area , Bistrița – Năsăud county (the northern part of Romania); Craiova - Dolj county (the south – western part of Romania); Tinca, Cheşa, Cociuba Mare, Oradea, Girişu – Negru, Husasău de Tinca, Belfir, Gurbediu, Râpa - Bihor county (the north – western part of Romania); Lugoj, Timișoara – Timiș county (the western part of Romania); Coșești, Pitești – Argeș county (the central part of Romania). Both binoculars (20 x 50, 7 x 35) and direct observations were used. For the determination of bird species the guide S.O.R. was used.

## RESULTS AND DISCUSSION

In the period 2000 – 2021, there were observed the following plumage pigment aberrations of birds:

**Albinism** is characterized by the complete lack of melanin pigment in the skin and plumage (Guay et al., 2012). It is caused by a genetic mutation due to the absence of the enzyme tyrosinase (Fox and Vevers, 1960).

– *Athene noctua* (Scopoli, 1769) – one completely albino specimen, Cheşa (BH), 8.2.2021; one 100 % albino specimen, Belfir (BH), 17.11.2019; one completely albino specimen, Cociuba Mare (BH), 16.11.2019. Sedentary species in Romania.

– *Troglodytes troglodytes* (Linnaeus, 1758) – one 100 % albino specimen, Cociuba Mare (BH), 2.6.2021. Summer visitor, rarely in winter in Romania.

– *Upupa epops* (Linnaeus, 1758) – one completely albino specimen, Cheşa (BH), 20.5.2021. Summer visitor in Romania.

– *Anas platyrhynchos* (Linnaeus, 1758) – one albino specimen, Oradea, the Crişul Repede river (BH), 18.8.2021. Sedentary species in Romania.

– *Phasianus colchicus* (Linnaeus, 1758) – one completely albino male specimen, with red eyes, the edge of the Tinca forest (BH), 3.11.2014; one male albino specimen, Tinca (BH), 13.12.2015. Sedentary species in Romania.

– *Perdix perdix* (Linnaeus, 1758) – one albino specimen, Râpa (BH), 1.10.2018; one completely albino specimen, Girişu – Negru (BH), 3.9.2012. Sedentary species in Romania.

**Leucism** occurs due to the total absence of melanin in some parts of the plumage (Guay et al., 2012). The degree of leucism is variable in the plumage and can occupy smaller or larger surfaces. The causes of leucism are diverse, often unknown: genetics, radioactivity, domestication selection, age, diet (Guay et al., 2012).

– *Corvus frugilegus* (Linnaeus, 1758) – one specimen with white spots on neck, undertail – coverts secondaries and rectrices, Oradea (BH), 18.9.2021; one specimen with white wings, Belfir (BH), 16.9.2015. Sedentary species in Romania.

– *Passer domesticus* (Linnaeus, 1758) – one female specimen with unilateral white spot on the undertail – coverts secondaries, Craiova (DJ), 3.9.2000; one female specimen with unilateral leucism: lesser coverts and secondaries entirely white but only at one wing. The other wing presented the normal colouring of the species, Tinca (BH), 7.3.2015; one female specimen with bilateral white tail and uppertail – coverts, Tinca (BH), 3.5.2015; one female specimen with unilateral white uppertail – coverts and

secondaries, Tinca (BH), 4.2.2015; one male specimen having white primaries, Tinca (BH), 22.2.2013; one male specimen with the white crown and many white spots on the body, Anieș – Maieru area (BN), September 27, 2010. Sedentary species in Romania.

– *Dendrocopos major* (Linnaeus, 1758) – one male specimen with white lesser, median and greater coverts, Tinca (BH), 1.2.2011; one specimen with the head almost white, Tinca (BH), 24.4.2013; one specimen with many white spots on the entirely body, Tinca (BH), 3.5.2013. Sedentary species in Romania.

– *Dendrocopos syriacus* (Hemprich & Ehrenberg, 1833) – one female specimen which had on each wing a large white spot that widens event o the shoulders of the wings, Tinca (BH), 2.9.2012. Sedentary species in Romania.

– *Pica pica* (Linnaeus, 1758) – one specimen having the tip of the wings white, Tinca (BH), 6.8.2017; one specimen with completely white dorsum, on wings there were observed oval white spots, abdomen to neck completely white, Tinca (BH), 16.12.2016; one specimen with white wings, the abdomen is partially black, Tinca (BH), 31.1.2017; one specimen with white wings, Tinca(BH), 9.2.2017; one specimen with white head, neck, primaries and secondaries, Tinca (BH), 28.3.2016; one specimen with white primaries, Tinca (BH). 2.6.2016. Sedentary species in Romania.

– *Buteo buteo* (Linnaeus, 1758) – one specimen with white tail, Husasău de Tinca (BH), 5.11.2015; one specimen almost white, with few black spots on the body, Anieș – Maieru area (BN), October 3, 2010. Partial migratory species in Romania.

– *Perdix perdix* (Linnaeus, 1758) – one specimen with many white spots on the body, Gurbediu (BH), 15.1.2017. Sedentary species in Romania.

– *Parus major* (Linnaeus, 1758) – one specimen with entirely white abdomen, having the characteristic black central stripe, Tinca (BH), 20.2.2015; one specimen having the terminal quarter of the ventral part white and not yellow as in the classic, Tinca (BH), 17.5.2013. Sedentary species in Romania.

– *Phasianus colchicus* (Linnaeus, 1758) – one male specimen with the white body, the wings with many white spots, Gurbediu (BH), 23.11.2015. Sedentary species in Romania.

– *Turdus merula* (Linnaeus, 1758) - one male specimen with many white spots on the body, the head was almost white, Anieș – Maieru (BN), September 12, 2005. Sedentary species in Romania.

– *Corvus monedula* (Linnaeus, 1758) - one specimens with many white spots on the body, Pitești (AG), November 2018. Sedentary species in Romania.

– *Turdus pilaris* (Linnaeus, 1758) – one specimen with many white spots on the body, Coșești (AG), February 3, 2019. Summer visitor or winter visitor in Romania.

**Melanism** is due to an abnormal amount of melanin deposited in feathers or melanin replaces carotenoids in part or all of the plumage (van Grouw, 2006; Guay et al., 2012). The formation of melanin is a genetic process which includes the oxidation of tyrosine catalysed by tyrosinase (van Grouw, 2006; Carpenter – King et al., 2017).

– *Aythya fuligula* (Linnaeus, 1758) – one entirely black male specimen, Tinca (BH), the Crișul Negru river, 13.10.2015. Winter or summer visitor in Romania.

– *Buteo buteo* (Linnaeus, 1758) – one entirely blackish male specimen, Cociuba Mare (BH), 6.1.2021; one blackish female specimen, Cheșa (BH), 22.9.2021; one blackish specimen, the Miersig forest (BH), 28.2.2019; one black specimen having even the black legs and not yellow legs like the specific specimens, Cheșa (BH), 17.2.2019; one brownish – black specimens, on Oradea (BH) – Lugoj (TM) – Timișoara (TM) route, 24.12.2018. Partial migratory species in Romania.

– *Parus major* (Linnaeus, 1758) – one partially melanic specimen in which the black spot in the middle of the abdomen was greatly extended so that the abdomen was almost entirely black, only the narrow sides were yellow, Tinca (BH), 8.1.2015; one specimen who presented one black spot localized only around of the anal orifice, Tinca (BH), 11.12.2016. Sedentary species in Romania.

– *Ciconia nigra* (Linnaeus, 1758) – one completely black specimen, Tinca (BH), 1.4.2015. Summer visitor in Romania.

– *Anser erythropus* (Linnaeus, 1758) – two specimens who presented melanism: the forehead was black, the undertail – coverts were black, Râpa (BH), the Crișul Negru river, 11.2.2015. Winter visitor or passage species in Romania.

– *Oenanthe pleschanka* ( Lepechin, 1779 ) – one male specimen with the head completely black and the abdomen almost black , Husasău de Tinca (BH), April 30 , 2018. Summer visitor in Romania.

**Dilution** consists in the deposition of the amount of pigment in a very small proportion, resulting in discoloration of the plumage (Guay et al., 2012). Causes: genetic mutation or probably diet or disease.

– *Buteo buteo* (Linnaeus, 1758) – one specimen with pale colour of the plumage, Tinca (BH), 10.6.2021. Partial migratory species in Romania.

– *Phoenicurus ochruros* ( Gmelin, 1774 ) – one female specimen with very pale colour of the plumage, beige – whitish, Anieș – Maieru ( BN), October 4, 2010. Summer visitor, rarely in winter in Romania.

**Xanthocroism** consists in replacing a pigment with the yellow or red pigment. Causes: genetic mutation, diet.  
– *Dryocopus martius* (Linnaeus, 1758) – one specimen with yellow skullcap, 3.3.2001; one specimen with orange skullcap, 2.2.2005 and 4.4.2010; two specimens with yellow – orange skullcap, 11.12.2006; one specimen with white – yellowish skullcap, 27.1.2008, 10.4.2008 and 12.10.2013. All these observations were made in the Anieș – Maieru area (BN); one specimen with the yellow – orange skullcap, Tinca (BH), 16.10.2013. Sedentary species in Romania.

– *Parus palustris* (Linnaeus, 1758) - one specimen which had a yellow abdomen, down to the chin, otherwise the plumage had the classic colour, Tinca (BH), 9.2.2015. Sedentary species in Romania.

– *Parus major* (Linnaeus, 1758) – one specimen with entirely yellow abdomen (without the characteristic black spot, being no juvenile specimen), the edge of the Tinca forest (BH), 12.10.2019.

– *Accipiter nisus* (Linnaeus, 1758) – one female specimen with red – brick legs and eyes of the same color, Tinca (BH), January 31, 2019. Sedentary species in Romania.

#### **Other chromatic aberrations**

-*Streptopelia decaocto* (Frisvaldszky, 1838) – one specimen having a reddish – brown plumage. Generally, this species has a gray plumage. Sedentary species in Romania.

– *Corvus monedula* (Linnaeus, 1758) – one specimen with a brown spot on the neck, Râpa (BH), 31.10.2019. Generally, the plumage is 100 % black or mixed with gray. Sedentary species in Romania.

– *Motacilla alba* (Linnaeus, 1758) – one specimen which had a gray – brown tail with white sides and not black with white sides as in the classic specimens, Tinca (BH), 17.4.2015. Summer visitor in Romania.

- *Carduelis carduelis* (Linnaeus, 1758) - one specimen with a pinkish – white beak and the tip of the beak had a black stripe both above and below, Tinca (BH), 24.4.2018. Sedentary species in Romania.

#### **CONCLUSIONS**

In the period 2000 – 2021, feather aberrations were observed in 27 species of birds from different areas of Romania: albinism, leucism, xanthocroism, melanism, dilution. Among the causes of these chromatic aberrations can be mentioned: genetic mutations, diet, age, disease, parasites and injury.

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## REFERENCES

1. Carpenter – King T., Dyer B.M., Makhado A.B., Pistorius P.A., 2017, Plumage aberrations in Macaroni penguins *Eudyptes chrysolophus* at subAntarctic Marion island. *Polar Bio*, vol.40, pp: 1907 – 1911.
2. Dombrowsky R.R., 1946, Păsările României. *Ornis Romaniae* ( The birds of Romania ). Monitorul oficial și imprimeriile statului. Imprimeria națională. București, p 435.
3. Fox H.M., Vevers G., 1960, The nature of animal colours. Sidwick & Jackson, London.
4. van Grouw H., 2006, Not every white bird is an albino: sense and non – sense about colour aberrations in birds. *Dutch Birding*, vol.28, pp: 79 – 89.
5. van Grouw H., 2013, What colour is that bird ? The causes and recognition of common colour aberrations in birds. *British Birds*, vol. 106, pp: 17 -29.
6. Guay P.J., Potvin D.A., Robinson R.W., 2012, Aberrations in plumage coloration in birds. *Australian Field Ornithology*, ( 29 ), pp: 23 – 30.
7. Ilie A.L., 2013, New taxonomical, ecological and ethological data of the fauna of vertebrates and insects from the Tinca area (Bihor county, Romania). *Universitatea din Oradea. D.P.P.P.D. Revista Educația omului de azi pentru lumea de mâine*, No. 10, pp: 173 – 177.
8. Ilie A.L., 2014 a, New faunistic researches from Tinca (Bihor county, Romania). *Argesis. Studii și comunicări. Seria Științele Naturii*, Tom XXII. Pp: 61 – 72, Pitești.
9. Ilie A.L., 2014 b, Recent phenological, ecological and taxonomical notes of the vertebrates and insects fauna from the Tinca area (Bihor county, Romania). *Drobeta. Seria Științele Naturii*, vol. XXIV, pp: 129 – 137.
10. Ilie A.L., 2014 c, New faunistic data from Tinca area (Bihor county, Romania). *Universitatea din Oradea. D.P.P.P.D. Revista Educația omului de azi pentru lumea de mâine*, No. 11, pp: 86 – 93.
11. Ilie A.L., 2015, Other observations about the insects and the vertebrates from Tinca area (Bihor county, Romania). *Universitatea din Oradea. D.P.P.P.D. Revista Educația omului de azi pentru lumea de mâine*. No. 12, pp: 93 – 98.
12. Ilie A.L., 2016 a, Ornithological data from Bihor county (Romania). *Universitatea din Oradea. D.P.P.P.D. Revista Educația omului de azi pentru lumea de mâine*. No. 13, pp: 113 -115.
13. Ilie A.L., 2016 b, Monografie faunistică. Organismele vertebrate din zona Tinca, județul Bihor, Romania (Faunal monography. Vertebrates from Tinca area, Bihor county, Romania), Edit. Sitech, Craiova, p. 267.
14. Ilie A.L., 2017 a, Observații asupra faunei de vertebrate din zona Tinca ( județul Bihor, România ) în perioada 1 aprilie – 1 septembrie 2017 (Observations about the fauna of vertebrates from Tinca area, Romania, during April 1 – September 1, 2017). *Mnemosyne*, vol. 8, pp: 5-9.
15. Ilie A.L., 2017 b, Faunal observations from Tinca area (Bihor county, Romania) during November 15, 2016 – April 1, 2017. *Argesis. Studii și comunicări. Seria Științele Naturii*, Tom. XXV, pp : 35 – 49, Pitești.
16. Ilie A.L., 2017c, Data about the fauna of vertebrates from the western half of Romania during 2016 – 2017, *Universitatea din Oradea. D.P.P.P.D. Revista Educația omului de azi pentru lumea de mâine*. No. 14, pp: 75 – 82.

17. Ilie L.C., Ilie A.L., 2018, New observations about the invertebrates and the vertebrates from different areas of Romania. *Argesis. Studii și comunicări. Seria Științele Naturii*, Tom XXVI, pp : 49 – 71, Pitești.
18. Ilie A.L., 2019, New data about the vertebrates from Bihor county (Romania) during 2014 – 2019. *Universitatea din Oradea. D.P.P.P.D. Revista Educația omului de azi pentru lumea de mâine*. No. 16, pp: 75 -88.
19. Ilie A.L., Marinescu M., 2019, Faunistical data from the western part of Romania during 2019. *Analele Universității din Oradea. Fascicula : Ecotoxicologie, zootehnie și tehnologii de industrie alimentară*, vol. XVIII/A, pp: 33-42.
20. Ilie A.L., Marinescu M., 2020, Faunistical data from Bihor county during the autumnal – hiemal seasons 2019. *Universitatea din Oradea. D.P.P.P.D. Revista Educația omului de azi pentru lumea de mâine*. No 17, pp: 121 – 129.
21. Linția D., 1954, Păsările din R.P.R. vol. al II – lea (The birds from Romania), București, p. 298.
22. Linția D., 1955, Păsările din R.P.R. vol. al III – lea (The birds from Romania), București, p. 487.

