**Supplementary Materials.**

**Supplementary Table 1** Details on antioxidant activity of agaric species occurring in Iran and the pertaining literature.

| **Species** | **Antioxidant potential**  |
| --- | --- |
|
| *Agaricus arvensis* Schaeff.  | EC50 0.8 mg/ml, 90.7 % (DPPH) (1)EC50 15.85 mg/ml (DPPH) (2)IC50 0.1 mg/ml (this study) |
| *Agaricus bisporus* (J.E. Lange) Imbach | EC50 1.4 – 3.2 mg/ml, scavenging activity 62.7 – 89.3 % (DPPH) (1)IC50 0.99 – 2.65 mg/ml (DPPH), 0.24 – 1.13 mg/ml (ABTS) (3)EC50 9.61 mg/ml (DPPH) (2)IC50 ≥ 0.4 mg/ml (ABTS) and ≥ 0.8 (DPPH) (4)EC50 3.82 mg/ml (DPPH) (5) |
| *Agaricus bitorquis* (Quél.) Sacc. | EC50 1.2 mg/ml, 91.3 % (DPPH) (1)scavenging activity 0.39 – 3.93 mg/ml (DPPH), 0.09 – 1.63 mg/ml (ABTS) (3)EC50 3.44 mg/ml (DPPH) (5)IC50 0.08 mg/ml (this study) |
| *Agaricus bresadolanus* Bohus | scavenging activity 12.28 – 24.70 % (DPPH), 64.11 – 75.98 % (ABTS) (6) |
| *Agaricus campestris* L. | EC50 1.6 mg/ml, 84.3 % (DPPH) (1)IC50 0.416 mg/ml (DPPH) (7)EC50 1.18 mg/ml (DPPH) (5) |
| *Agaricus iodosmus* Heinem. | IC50 0.09 mg/ml (this study) |
| *Agaricus pseudopratensis* (Bohus) Wasser | IC50 0.11 mg/ml (this study) |
| *Agaricus subrufescens* Peck | EC50 3.0 – 3.2 mg/ml (DPPH) (8) EC50 2.15 mg/ml (DPPH) (9)EC50 5.02 mg/ml (DPPH) and 6.77 mg/ml (ABTS)(10) |
| *Agrocybe dura* (Bolton) Singer | IC50 0.16 mg/ml (this study) |
| *Agrocybe pediades* (Fr.) Fayo | scavenging activity 65.5% (DPPH) (standard vit. C 97.2%) (11) |
| *Agrocybe praecox* (Pers.) Fayod | IC50 12.5 mg/ml (ABTS) (12) |
| *Amanita caesarea* (Scop.) Pers. | EC50 7.41 mg/ml (DPPH) (13) |
| *Amanita crocea* (Quél.) Singer | EC50 7.94 mg/ml (DPPH) (14)IC50 1.69 mg/ml (DPPH) and 0.92 (ABTS) (a polysaccharide) (15) |
| *Amanita pantherina* (DC.) Krombh. | EC50 3.89 mg/ml (DPPH) (13) |
| *Amanita rubescens* Pers. | IC50 0.114 – 0.186 mg/ml (DPPH) (16) |
| *Amanita vaginata* (Bull.) Lam. s.l. | EC50 1.8 mg/ml (DPPH) (17) |
| *Armillaria mellea* (Vahl) P. Kumm. | EC50 2.96 – 8.62 mg/ml (DPPH) (18)IC50 1.06 – 1.32 mg/ml (DPPH) (19)IC50 6.44 mg/ml (DPPH) (20)IC50 1.20 mg/ml (DPPH) (21)IC50 0.55 mg/ml (this study) |
| *Calocybe gambosa* (Fr.) Donk | IC50 7.08 – 34.60 mg/ml (DPPH) (22) |
| *Cantharellus alborufescens* (Malençon) Papetti & S. Alberti | IC50 1.12 mg/ml (this study) |
| *Cantharellus cibarius* Fr. | IC50 0.158 – 0.192 mg/ml (DPPH) (16)IC50 0.264 – 0.548 mg/ml (DPPH) (IC50 Fe chelating ability 0.016 –0.579 mg/ml, H2O2 scavenging activity 0.00064 – 0.0012 mg/ml) (specied det. unconfirmed) (23) EC50 19.65 mg/ml (DPPH) (**Error! Reference source not found.**)EC50 7.41 mg/ml (DPPH?) (24) scavenging activity 61.7 –70.5% (DPPH) (standard 93.8%) (25) |
| *Chlorophyllum rhacodes* (Vittad.) Vellinga | EC50 5.32 mg/ml (DPPH) (26)EC50 3.4 mg/ml (DPPH) (27) |
| *Clitocybe nebularis* (Batsch) P. Kumm. | IC50 0.046 mg/ml (DPPH) (standard vit. C 0.006) (28) |
| *Clitopaxillus alexandri* (Gillet) G. Moreno, Vizzini, Consiglio & P. Alvarado | EC50 28.72 (mg/ml) (DPPH) (29) |
| *Clitopilus prunulus* (Scop.) P. Kumm. | EC50 1.75 mg/ml (DPPH) (30) |
| *Conocybe tenera* (Schaeff.) Fayod | EC50 5.13 mg/ml (DPPH) 3.21 mg/ml (ABTS) (31) |
| *Coprinellus domesticus* (Bolton) Vilgalys, Hopple & Jacq. Johnson | IC50 0.250 – 0.397 mg/ml (DPPH) (32) |
| *Coprinellus micaceus* (Bull.) Vilgalys, Hopple & Jacq. Johnson | IC50 0.5 mg/ml (DPPH) (33)scavenging activity 81.45% (DPPH) (34) |
| *Coprinellus truncorum* (Scop.) Redhead, Vilgalys & Moncalvo | IC50 0.065 mg/ml (DPPH) (35) |
| *Coprinopsis atramentaria* (Bull.) Redhead, Vilgalys & Moncalvo | EC50 2.48 – 3.87 mg/ml (DPPH) (36) IC50 0.34 mg/ml (this study) |
| *Coprinopsis cinerea* (Schaeff.) Redhead, Vilgalys & Moncalvo | scavenging activity 50% (DPPH) (37)EC50 4.24 mg/ml (DPPH) (38) |
| *Coprinopsis picacea* (Bull.) Redhead, Vilgalys & Moncalvo | IC50 0.45 mg/ml (DPPH) (39) |
| *Coprinus comatus* (O.F. Müll.) Pers. | EC50 0.86 – 8.9810 mg/ml (DPPH) (40)scavenging activity 84.5% (DPPH) (standard BHA 93.6%) (41)IC50 0.024 mg/ml (DPPH) (35)IC50 0.32 mg/ml (this study) |
| *Cortinarius persoonianus* Bidaud | IC50 0.28 mg/ml (this study) |
| *Cortinarius violaceus* (L.) Gray | EC50 15.70 mg/ml (DPPH) (13) |
| *Craterellus cornucopioides* (L.) Pers. | IC50 0.019 mg/ml (DPPH) (standard vit. C 0.006 mg/ml) (42)IC50 5.26–12.01 mg/ml (DPPH) (43) |
| *Craterellus tubaeformis* (Fr.) Quél. | EC50 0.6 mg/ml (DPPH) and 0.27 mg/ml (ABTS) (44) |
| *Cyclocybe cylindracea* (DC.) Vizzini & Angelini | EC50 7 – 21.5 mg/ml (DPPH) (45) scavenging activity 40% (DPPH) (standard catechin 65.22%) (46)  |
| *Echinoderma asperum* (Pers.) Bon  | DPPH ‘negative’ (47) |
| *Flammulina velutipes* (Curtis) Singer | IC50 > 50 mg/ml (DPPH) (48)scavenging activity 57.93%–66.75% (DPPH) (polysaccharides) (standard BHA 99.82%) (49)scavenging activity 67.37% (polysaccharides) (DPPH) and 67.87% (H2O2) (50)IC50 0.97 mg/ml (DPPH) (51)IC50 0.2 – 0.57 mg/ml (DPPH) (52)EC50 0.46 ­– 0.63 mg/ml (DPPH) (53)EC50 1.6±0.4 mg/ml (DPPH) (**Error! Reference source not found.**) |
| *Gymnopilus penetrans* (Fr.) Murrill | IC50 17.49 ± 0.21 mg of dry extract per mg DPPH (54) |
| *Gymnopilus spectabilis* (Weinm.) A.H. Sm. | scavenging activity ≤ 80.33% (DPPH) (standard BHA ≤ 93.33) (55)IC50 0.19 mg/ml (this study) |
| *Gymnopus dryophilus* (Bull.) Murrill | scavenging activity 7.41 – 35.10 % (DPPH), 20.58 – 59.11 % (ABTS) (6) |
| *Gymnopus fusipes* (Bull.) Gray | EC50 15.46 ± 0.39 mg/ml DPPH (56) |
| *Hebeloma sinapizans* (Paulet) Gillet | EC50 6.96 mg/ml (DPPH) (standard Trolox 0.04 mg/ml) (56) |
| *Hygrophoropsis aurantiaca* (Wulfen) Maire | EC50 1.20 (mg/ml) (DPPH) (29) |
| *Hygrophorus eburneus* (Bull.) Fr. | IC50 0.102 mg/ml (DPPH) (57) |
| *Hymenopellis radicata* (Relhan) R.H. Petersen | IC50 1.08 mg/ml (this study) |
| *Hypholoma capnoides* (Fr.) P. Kumm. | EC50 20.85 (mg/ml) (DPPH) (29) |
| *Hypholoma fasciculare* (Huds.) P. Kumm. | EC50 1.13 mg/ml (DPPH) (**Error! Reference source not found.**)IC50 0.05 mg/ml (this study) |
| *Hypholoma lateritium* (Schaeff.) P. Kumm. | IC50 ca. 0.5 – 1.7 mg/ml (DPPH) (58) |
| *Hypsizygus ulmarius* (Bull.) Redhead | IC50 0.120 mg/ml (ABTS) and 0.44 mg/ml (DPPH) (59)IC50 0.007– 0.008 mg/ml (DPPH) (60) |
| *Infundibulicybe geotropa* (Bull. ex DC.) Harmaja | scavenging activity 5.30 – 12.93 % (DPPH), % 14.77 – 50.39 (ABTS) (6)scavenging activity 80% (DPPH) (61) |
| *Laccaria amethystina* Cooke | EC50 15.72 (mg/ml) (DPPH) (29) |
| *Laccaria laccata* (Scop.) Cooke | EC50 21.95 (mg/ml) (DPPH) (29) |
| *Lactarius deliciosus* (L.) Gray | IC50 0.494 mg/ml (DPPH) (standard 0.006 mg/ml) (62) IC50 ˃17 mg/ml (DPPH) (63)EC50 16.31–20.54 mg/ml (DPPH) (24) |
| *Lactifluus piperatus* (L.) Roussel | IC50 0.099 – 0.173 mg/ml (DPPH) (16)EC50 5.19 – 20.24 mg/ml (DPPH) (64)IC50 1.40 –1.51 mg/ml (DPPH) 0.52 – 0.60 mg/ml (ABTS) (65)IC50 0.157 mg/ml (DPPH) (standard Trolox 0.111 mg/ml) (66) |
| *Lactifluus vellereus* (Fr.) Kuntze | IC50 0.68 mg/ml (DPPH) (67)EC50 7.76 – 17.46 mg/ml (DPPH) (36) |
| *Lactifluus volemus* (Fr.) Kuntze | EC50 21.68 mg/ml (DPPH) (13) |
| *Lentinus lepideus* (Fr.) Fr. | scavenging activity 8.29 – 75.72% (DPPH) (standard BHA 85.25 – 98.74%) (68)EC50 >1 mg/ml (DPPH) (standard Trolox 0.014, ascorbic acid 0.006 mg/ml) (69) |
| *Lentinus sajor-caju* (Fr.) Fr. | scavaging activity 6.40 – 13.65 % (DPPH), 9.73 – 68.97 % (ABTS) (6)scavaging activity 56.36% (DPPH), 51.41% (ABTS) (70)12.5 mg/ml (DPPH) (71) |
| *Lentinus tigrinus* (Bull.) Fr. | EC50 DPPH >1 mg/ml, (Trolox 0.014, ascorbic acid 0.006 mg/ml) (69)IC50 0.68 mg/ml (this study) |
| *Lepista nuda* (Bull.) Cooke | EC50 4.41 mg/ml (DPPH) (**Error! Reference source not found.**)EC50 3.67-8.73 mg/ml (DPPH) (72)scavaging activity 91.3% (DPPH) (standard BHA 97.4%) (73) |
| *Leucoagaricus leucothites* (Vittad.) Wasser | IC50 8.3 mg/ml (DPPH) (74)EC50 7.3±0.9 mg/ml (DPPH) (**Error! Reference source not found.**)IC50 0.35 mg/ml (this study) |
| *Leucopaxillus giganteus* (Sowerby) Singer | IC50 2 mg/ml (DPPH)(polysaccharids) (75)EC50 3.2 – 3.6 mg/ml (DPPH) (76) |
| *Macrocybe gigantea* (Massee) Pegler & Lodge | EC50 0.096 – 0.108 mg/ml (DPPH) (77)IC50 0.75 mg/ml (DPPH) (78) |
| *Macrolepiota excoriata* (Schaeff.) Wasser | EC50 1.32 mg/ml (DPPH) (30)scavaging activity 3.40 % (DPPH), 15.20 % (ABTS) (6) |
| *Macrolepiota mastoidea* (Fr.) Singer | EC50 8.18 – 8.49 mg/ml (DPPH?) (24)EC50 8.18 – 25.60 mg/ml (DPPH) (79)EC50 5.4 mg/ml (DPPH) (27) |
| *Macrolepiota procera* (Scop.) Singer | IC50 0.311 mg/ml (DPPH) (standard 0.006 mg/ml) (62)EC50 5.38 – 6.95 mg/ml (DPPH?) (24)EC50 4.9 – 7.9 mg/ml (DPPH) (80)IC50 1.19 – 1.31 mg/ml (DPPH) (19)EC50 7.22 mg/ml (DPPH) (81)IC50 0.19 mg/ml (DPPH) (standard BHT 0.09) (82) |
| *Marasmiellus peronatus* (Bolton) J.S. Oliveira | EC50 0.61 mg/ml (83) |
| *Marasmius oreades* (Bolton) Fr. | IC50 0.09 mg/ml (DPPH) (standard GA 0.002 mg/ml) (84)EC50 3 – 4 mg/ml (DPPH) (85)IC50 3.54 mg/ml (DPPH) (86)EC50 2.78 mg/ml (DPPH) (87) |
| *Melanoleuca exscissa* (Fr.) Singer | IC50 0.25 mg/ml (this study) |
| *Mycenastrum corium* (Guers.) Desv. | IC50 0.007 mg/ml (ABTS) (standard Trolox 2.15 mg/ml) (88) |
| *Omphalotus olearius* (DC.) Singer | scavenging activity 22.97 – 60.25 % (DPPH), 48.38 – 88.01 % (ABTS) (6)EC50 0.9 ± 0.1 mg/ml (DPPH) (**Error! Reference source not found.**) |
| *Panus conchatus* (Bull.) Fr. | EC50 DPPH >1 mg/ml (standard Trolox 0.014 mg/ml, ascorbic acid 0.006 mg/ml) (69) |
| *Paralepista flaccida* (Sowerby) Vizzini | EC50 >1 mg/ml (89) |
| *Paxillus involutus* (Batsch) Fr. | IC50 0.38 mg/ml (DPPH) and 0.92 mg/ml (ABTS) (a polysaccharide)(90)IC50 0.016 mg/ml (DPPH) (91)IC50 0.6 mg/ml (DPPH) (92) |
| *Phaeomarasmius erinaceus* (Fr.) Scherff. ex Romagn. | IC50 2.36 mg/ml (DPPH) (a heterogalactan) (93) |
| *Pholiota adiposa* (Batsch) P. Kumm. | scavenging activity 75.2% (DPPH) (a polysaccharide, standard BHT 65.8%) (94)IC50 0.25 mg/ml (this study) |
| *Phyllotopsis nidulans* (Pers.) Singer | scavenging activity 49% (DPPH) and 8% (ABTS) (95)  |
| *Pleurotus calyptratus* (Lindblad ex Fr.) Sacc. | scavenging activity 12.5% – 23.8% (DPPH) (96) |
| *Pleurotus cornucopiae* (Paulet) Rolland | scavenging activity 12.1% – 29.2% (DPPH) (96)IC50 0.41 mg/ml (this study) |
| *Pleurotus djamor* (Rumph. ex Fr.) Boedijn | scavenging activity 3.92 – 9.06 % (DPPH), 21.68 – 81.71 % (ABTS) (6)scavaging activity 8.7% – 22.5 (DPPH) (96)EC50 0.6 mg/ml (DPPH) (97)EC50 2.75 mg/ml (DPPH) (98) |
| *Pleurotus dryinus* (Pers.) P. Kumm. | scavaging activity 23.8% – 75.5% (DPPH) (96) |
| *Pleurotus eryngii* (DC.) Quél. | IC50ca. 50 mg/ml (DPPH) (48)EC50 2.67 mg/ml (DPPH) (99)EC50 1.08 – 1.30 mg/ml (DPPH) (standard cathechin 0.01 mg/ml) (100)EC50 7.34 mg/ml (DPPH) (101)scavaging 37.3% – 39.1% (DPPH) (102)IC500.24 mg/ml (this study) |
| *Pleurotus fossulatus* (Cooke) Sacc. | scavaging 33.6% – 40.6% (DPPH) (103) |
| *Pleurotus nebrodensis* (Inzenga) Quél. | EC50 6.7 ± 0.9 mg/ml (DPPH) (**Error! Reference source not found.**)scavaging 44.54% – 91.38 (DPPH) (standard BHT 85.25–98.23%) (104) |
| *Pleurotus ostreatus* (Jacq.) P. Kumm. | EC50 13 – 25 mg/ml (DPPH) (45)IC50 11 mg/ml? (DPPH) (71)scavaging activity 8.1% – 25.2% (DPPH) (96)EC50 4.42 mg/ml (DPPH) (101)IC50 8 mg/ml (hydroxyl and superoxide radicals) (105)scavaging 87.29% (ABTS) (standard 73.11%) (106)IC50 0.46 mg/ml (this study) |
| *Pleurotus pulmonarius* (Fr.) Quél.  | EC50 0.51 mg/ml (DPPH) and 0.03 mg/ml (ABTS) (107)EC50 1.21 mg/ml (DPPH) (99)IC50 8 mg/ml (DPPH) (standard quercetin 0.09 mg/ml) (108)scavaging activity 7.4% – 27.5% (DPPH) (96) |
| *Pluteus cervinus* (Schaeff.) P. Kumm. | 25.6% – 92.7% (DPPH) (standard BHT 96.19% – 96.97% and 75.6 – 95.1% for OH scavaging) (109)IC50 0.11 mg/ml (this study) |
| *Psathyrella bivelata* Contu | 0.27 mg/ml (this study) |
| *Psathyrella candolleana* (Fr.) Maire  | IC50 0.0015 mg/ml (DPPH) (a flavonoid) (110)scavaging 89.76% (DPPH) (111)  |
| *Rhodotus palmatus* (Bull.) Maire | EC50 7.58 – 15.48 mg/ml (DPPH) (36) |
| *Russula alutacea* (Pers.) Fr. | EC50 0.85 – 1.25 mg/ml (DPPH) (polysaccharides, standard vit. C 0.55 mg/ml) (112) EC50 0.38 mg/ml (polysaccharides, standard vit. C 0.30 mg/ml) (DPPH) (113) |
| *Russula anthracina* Romagn. | 90.62% (DPPH) (standard BHT 98.24%) (114)  |
| *Russula cyanoxantha* (Schaeff.) Fr. | IC50 0.086 – 0.262 mg/ml (DPPH) (16)IC50 0.835 mg/ml (DPPH) (115)IC50 0.69 mg/ml (DPPH) (30)IC50 0.073 mg/ml (ABTS) 0.866 (DPPH) (standard BHT 0.051 mg/ml) (116)  |
| *Russula delica* Fr. | EC50 20.53 (mg/ml) (DPPH) (29)IC50 44.0 mg/ml (standards BHA, BHT, α -Tocopherol < 0.1 mg/ml) (DPPH) (117) |
| *Russula emetica* (Schaeff.) Pers. | EC50 1.13 mg/ml (DPPH) (standard Trolox 0.04 mg/ml) (56)  |
| *Russula emeticolor* J. Schaeffer | IC50 0.12 mg/ml (this study) |
| *Russula integra* (L.) Fr.  | IC50 1.720 mg/ml (TBARS assay) (standard Trolox 19.6 mg/ml) (118) |
| *Russula nigricans* Fr. | IC50 0.12 mg/ml (TBARS assay) (standard Trolox 0.019 mg/ml) (118)  |
| *Russula olivacea* Pers. | IC50 1.47 mg/ml (DPPH) (30) |
| *Russula rosea* Pers. | IC50 0.092 mg/ml (TBARS assay) (standard Trolox 0.019 mg/ml) (118) scavenging activity 87.85% at 2.0 mg/ml (DPPH) (standard BHT 96.97%) (119) |
| *Russula virescens* (Schaeff.) Fr. | EC50 30.21 mg/ml (DPPH) (14)IC50 1.48 mg/ml (polysaccharides) (ABTS) (120)IC50 0.44 mg/ml (ABTS) 0.22 mg/ml (DPPH) (121)IC50 15 mg/ml (DPPH) (122) |
| *Russula xerampelina* (Schaeff.) Fr. | scavenging activity 31.2% (DPPH) (123) |
| *Strobilurus esculentus* (Wulfen) Singer | EC50 29.6 mg/ml (DPPH) (standard vit. C 21.8 mg/ml) (124) |
| *Tricholoma acerbum* (Bull.) Quél. | EC50 3.60 mg/ml (DPPH) (**Error! Reference source not found.**) |
| *Tricholoma equestre* (L.) P. Kumm. | IC50 1.5 mg/ml (DPPH) (standard vit. C 0.003) (125)EC50 0.035 mg/ml (DPPH) (standard BHA 0.025) (126)EC50 3.60 mg/ml (DPPH) (127) |
| *Tricholoma sulphureum* (Bull.) P. Kumm. | EC50 4.69 (mg/ml) (DPPH) (29) |
| *Tricholoma terreum* (Schaeff.) P. Kumm. | IC50 12.17 mg/ml (DPPH) (standard BHA 0.32 mg/ml) (128)24.6% (DPPH) and 88.4% (ABTS) (standard BHA 95.9%, 96%) (129)IC50 31.42 mg/ml (DPPH) (standard GA 0.037 mg/ml) (130) |
| *Tricholoma ustale* (Fr.) P. Kumm. | EC50 4.89 mg/ml (DPPH) (13) |
| *Tubaria furfuracea* (Pers.) Gillet | IC50 74.15 mg of dry extract per mg DPPH (DPPH) (standard Trolox 0.134 mg/mg) (54) |
| *Volvariella bombycina* (Schaeff.) Singer | scavenging activity 18% (DPPH) (standard vit. C 95%) (131) |
| *Volvariella volvacea* (Bull.) Singer | IC50 2.05 mg/ml (DPPH) (standard vit. C 0.09 mg/ml) (132)scavenging activity 82.9% (DPPH) (free phenolic extracts) (133) |
| *Volvopluteus gloiocephalus* (DC.) Vizzini, Contu & Justo | IC50 3.60 mg/ml (DPPH) (standard GA 0.037) (130) |
| *Xerula pudens* (Pers.) Singer | IC50 0.23 mg/ml (this study) |

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**Supplementary FIGURE 2** Calibration curve of ABTS radical inhibition % by Trolox.