DRN

Quality without
compromise

ORIGINAL Epato® Plus

Since always, Liver Protector!

The hepatoprotector with clinical studies and field results,
both in Italy and in Europe, that has always proven its efficacy.

EPATO® PLUS and the liver

For the sole use of vets and pharmacists


ORIGINAL
Epato 1500 Plus
Alimento complementare per cani
con Estratto di Cardo Mariano e Fosfatidilcolina
DRN
32 Compresse da 1500 mg

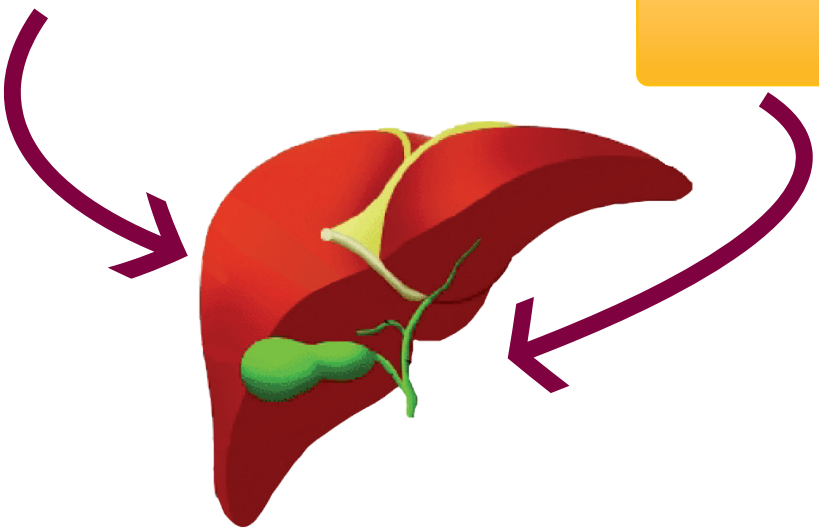
The causes of liver disease

Microorganisms

Viruses
Bacteria
Parasites

Potentially toxic substances

Plants
Poison
Drugs and
their metabolites



The importance of early diagnosis

We need to know that

The liver is a generous organ

- Regenerating capacity
- Large functional reserve

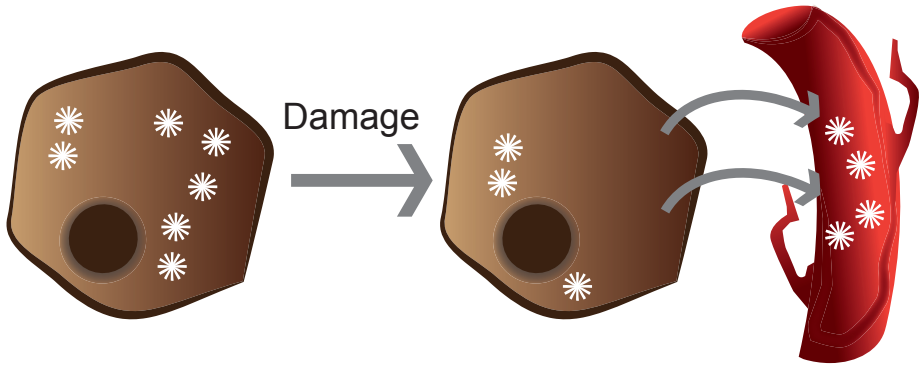
→ Delayed symptoms

Hence, liver disease should be diagnosed before the onset of symptoms.
Only this will ensure actual efficacy of treatment and a more favourable prognosis.

How does the liver respond to attacks?

1 It suffers damage and tissue degeneration

Enzyme markers of liver disease (ALT, AST, AP, YGT) are released from the cytoplasm and their levels rise in circulating blood.



© af

2 It reacts

- Phlogosis
- Regeneration
- Fibrosis

These responses can be:

- more or less intensive
- more or less persistent
- more or less concurrent

This depends on:

- type of hazardous agent
- age of the animal
- concomitant diseases, if any
- early diagnosis and surgery

In case of persistent attacks, anatomical damage will alter organ function, which can be measured with liver function tests (bilirubinaemia, bile acids). Said damage must then be precisely assessed by means of an organ biopsy.

Liver disease - diagnosis

High marker levels for liver damage

↓

Altered liver function tests

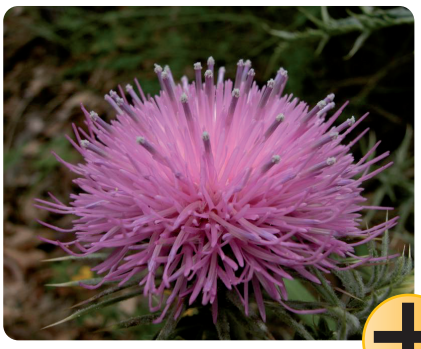
↓

BIOPSY

↓

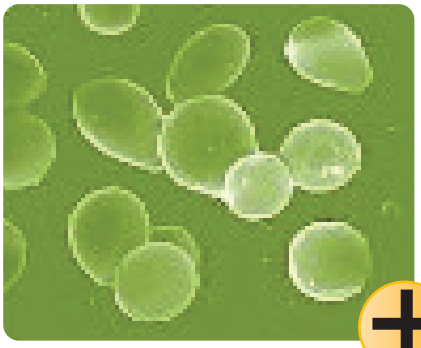
DIAGNOSIS

The action mode of EPATO® PLUS



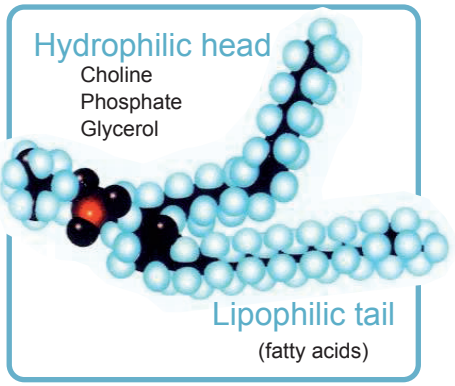
Silymarin

Obtained from the purified extract of Milk Thistle fruits, it is an isometric compound of silibinin, oxylibinin, silycristin and silydianin.



Mannan oligosaccharides (MOS)

Obtained from lysis of the Saccharomyces Cerevisiae yeast cell wall.

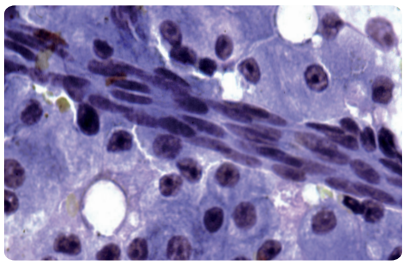


Phosphatidylcholine

Phospholipid component of the cytoplasmic membrane.

Silymarin

- Stimulates liver protein synthesis
- Encourages production of new cells
- Increases regeneration velocity



1. Regenerative action:
By stimulating the action of polymerase A in the cell nucleolus, it increases the synthesis of ribosomal RNA. ⟶ This increases protein synthesis with a subsequent rise in liver regeneration velocity. It is essential for primary and secondary liver diseases!

2. Anti-inflammatory action:
Flavonoids present in Milk Thistle Extract inhibit the enzyme COX-2 (cyclooxygenase 2) that converts arachidonic acid into prostaglandins. They also block the synthesis of leukotriene B4, a chemotactic factor, by reducing leukocyte migration to the site of the lesion and, hence, further reducing both liver inflammation and fibrosis.

3. Antioxidant action:
Stimulates the formation of the enzyme SOD (superoxide dismutase), which protects lipids that are present in the intrinsic structure of the cellular and ribosomal membrane, thus preventing membrane alterations that usually occur in case of oxidative stress-related hepatic degeneration. It is, therefore, an essential adjuvant in the treatment of certain diseases that have an oxidative pathogenesis, such as copper build-up (primary in some races, secondary and very frequent in several forms of liver disease in the dog: Dobermann, Labrador, etc.).

4. Detoxifying action:
Increases both reduced and total glutathione availability and, therefore, the detoxifying capacity of the liver.

5. Lipid level normalising action:
Normalises both total lipids and the levels of triglycerides and cholesterol by improving the cellular metabolism of hepatocytes!

6. Colagogue effect:
With 80% excreted through bile ducts, it stimulates bladder emptying.

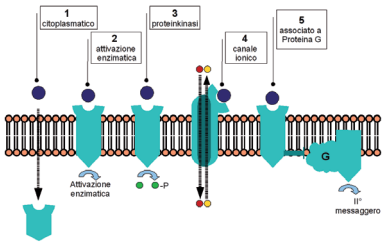
Mannan oligosaccharides (MOS)

Probiotics that:

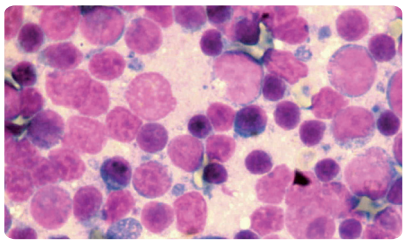
- influence bacterial intestinal populations;
- are only fermented by non-pathogenic bacteria; hence the term “selective pressure”!
- prevent mycotoxins and food toxin absorption by occupying enterocyte membrane receptors;
- improve immune defences because MOS are obtained through lysis of Saccharomyces cerevisiae yeast cell walls that produces beta glucans, which are immunostimulant polysaccharides that stimulate the production of macrophages and T and B lymphocytes. They also support repairs on damaged tissues by potentiating the regenerative process.

“Selective pressure”

- Only non-pathogenic bacteria can multiply



- They prevent mycotoxin and food toxin absorption by occupying enterocyte membrane receptors.



- They influence immune function

B and T lymphocyte stimulation

Indications

- **Primary liver disease**
- **Secondary liver disease**
- **Chronic extrahepatic disease requiring long-term treatment that can potentially stress liver detoxification mechanisms:**
  - antibiotic therapies for pyodermitis
  - neoplasms subjected to chemotherapy
  - treatment for leishmaniasis
  - cardiological therapies
- **Emaciated or elderly subjects with low functional reserve**
- **Chronic infiltrative enteropathies:**
  - IBD
  - food intolerance/allergies
- **Chronic pancreatitis**
- **Pregnancy**
- **Convalescence**

Cases treated - Past experience...

TABLE 1 .

case n°.	name	race	sex	age	diagnosis
1	Luna	Maremma sheepdog	F	9a	IBD
2	Fox	Crossbreed	M	8a	Reactive hepatopathy
3	Clio	Crossbreed	F	14a	Hepatic cirrhosis
4	Generale	Yorkshire	M	8a	Cushing's syndrome
5	Tilly	Crossbreed	F	4a	Seizures following distemper
6	Chicca	Crossbreed	F	11a	Primary epilepsy
7	Maggy	Crossbreed	F	13a	Primary epilepsy
8	Kira	German sheepdog	F	12a	Leishmaniasis
9	Sara	German sheepdog	F	7a	Leishmaniasis
10	Polo	Siberian husky	M	6a	Leishmaniasis
11	Emily	Crossbreed	F	7a	Leishmaniasis
12	Laika	Basset hound	F	4a	Leishmaniasis

TABLE 4 . Most significant mean variations found in hepatic parameters on day 1 (blue) and day 30 (orange).

Case No.	AST (g.0)	AST (g.30)	ALT (g.0)	ALT (g.30)	GGT (g.0)	GGT (g.30)	ALP (g.0)	ALP (g.30)
1 -Luna	235	157	108	102	12	10	222	200
2 - Fox	125	12	178	41	32	12	259	196
3 - Clio	32	61	388	205	44	35	3192	2431
4 - Generale	22	31	73	54	38	20	1052	650
5 - Tilly	292	156	61	103	32	24	333	247
6 - Chicca	37	29	110	68	58	37	1078	926
7 - Maggy	201	156	221	100	22	20	1132	921
8 - Kira	49	55	120	145	14	11	261	188
9 - Sara	100	167	164	97	22	28	94	100
10 - Polo	126	110	240	187	10	10	47	65
11 - Emy	29	32	55	39	9	7	389	285
12 - Laika	102	97	441	278	14	13	1245	812
VARIATION		- 40%		- 36,36%		- 26%		- 26,5 %

Cases treated - Past experience...

T. Cocca *Treatment with complementary hepatoprotective feed. Experience in 14 dogs presenting secondary liver disease associated with phenobarbital.* **SUMMA vol.25/April 2008/N°3**

Biochemical profile of subjects treated before the start of treatment with complementary hepatoprotective feed

Case n°	BUN	Crea	Glu	P. T.	Alb	Glo	A/G	Bil	Ast	Alt	γGt	PA	Col	Tri
1 -	21	0,8	108	6,7	3,7	3,0	1,2	0,14	123	226	57	514	185	89
2 -	34	1,2	98	6,9	4,0	3,9	1	0,20	108	306	29	361	170	103
3 -	27	1	89	7,4	3,2	4,2	0,8	0,12	202	184	76	684	132	78
4 -	31	0,6	97	7,2	3,6	3,6	1	0,10	147	267	54	1042	145	88
5 -	24	0,8	100	6,8	3,8	3	1,2	0,14	111	432	39	861	165	76
6 -	25	1,1	97	7,1	3,4	3,7	0,9	0,11	214	223	68	449	134	108
7 -	30	0,7	99	7,5	3,4	4,1	0,80	0,13	177	168	42	717	136	90
8 -	22	1	107	7,1	3,8	3,3	1	0,14	125	335	44	388	150	75
9 -	17	0,9	100	7,7	3,8	3,9	1	0,18	167	297	71	453	128	86
10 -	26	0,9	96	7,4	3,9	3,5	1,1	0,10	146	204	32	751	176	75
11 -	18	1	99	7,7	3,4	4,3	0,80	0,11	134	339	12	350	124	77
12 -	29	0,8	102	7,2	3,1	4,1	0,7	0,20	97	278	31	328	130	81
13 -	18	0,7	106	7,5	3,5	4	0,9	0,13	189	275	28	664	144	65
14 -	22	1	87	7,8	4,0	3,8	1	0,15	256	301	34	432	153	100

Table 2

Biochemical profile of subjects treated 4 months after starting treatment with complementary hepatoprotective feed

Case n°	BUN	Crea	Glu	P. T.	Alb	Glo	A/G	Bil	Ast	Alt	γGt	PA	Col	Tri
1 -	21	0,8	84	6,8	3,4	3,4	1	0,15	102	170	38	478	162	90
2 -	37	1,1	101	7,0	3,9	3,1	1,1	0,21	76	76	12	340	174	121
3 -	21	0,8	100	7,3	3,1	4,2	0,8	0,12	86	175	55	546	148	65
4 -	28	0,9	88	7,6	3,6	4,0	0,9	0,10	48	169	33	860	145	88
5 -	24	0,8	100	6,8	3,8	3	1,2	0,14	65	216	21	400	165	76
6 -	25	1,1	97	7,1	3,4	3,7	0,9	0,16	154	109	65	355	134	98
7 -	32	0,8	98	7,6	3,3	4,3	0,8	0,18	47	145	14	698	109	91
8 -	28	1	100	7,3	3,7	3,6	1	0,14	88	232	21	271	133	79
9 -	23	0,7	109	7,6	3,8	3,8	1	0,16	137	188	70	328	108	81
10 -	23	0,8	102	7,4	3,8	3,6	1	0,16	98	156	18	558	155	90
11 -	27	1,2	82	7,5	3,2	4,3	0,80	0,10	105	281	13	327	104	73
12 -	33	1,1	107	7,4	3,5	3,9	0,9	0,19	40	150	16	213	139	66
13 -	22	0,7	97	7,6	3,9	3,7	1	0,10	124	266	21	479	121	86
14 -	28	1,1	103	7,6	3,8	3,8	1	0,18	173	281	20	210	144	73

Table 3

Conclusions:

“ The administration of EPATO® PLUS during anticonvulsant therapy with phenobarbital considerably reduces blood levels of enzyme markers of liver disease. It is, therefore, conceivable to believe that EPATO® PLUS reduces the incidence of secondary liver disease (and then of primary liver disease) caused by the toxicity of phenobarbital. It is certainly useful to start administration CONCURRENTLY with the initiation of anticonvulsant therapy.”

Cases treated - The experience continues...

n°	name	race	Sex	age	diagnosis
1	Lillo	Yorkshire	m	4a	Primary epilepsy
2	Alba	Crossbreed	F	4a	Primary epilepsy
3	Sally	Crossbreed	F	4a	Primary epilepsy
4	Pippo	Labrador	m	8a	Primary epilepsy
5	Lucky	Crossbreed	m	5a	Leishmaniasis
6	Pepe	Beagle	F	4a	Leishmaniasis
7	Lara	German sheepdog	f	5a	Leishmaniasis
8	Tris	Crossbreed	m	3a	Leishmaniasis
9	Pupa	Crossbreed	F	7a	Leishmaniasis

Assessment of variations in enzyme markers of liver disease after 30 days of treatment

name	Ast g.0	Ast g.30	Alt g.0	Alt g.30	□Gt g.0	□Gt g.30	ALP g.0	Alp g.30
Lillo	164	87	236	119	14	9	344	230
Alba	96	54	180	61	20	11	423	244
Sally	84	43	154	80	23	5	376	243
Pippo	78	39	223	100	18	12	520	300
Lucky	97	52	247	112	15	9	395	240
Pepe	120	44	159	86	22	17	378	225
Lara	188	90	150	50	14	8	329	221
Tris	88	45	196	45	19	10	369	148
Pupa	142	57	188	36	25	12	434	270
% Reduction								
		- 48%		-36,5%		- 49%		-48,5%

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DRN s.r.l.
Via Bellisario, 23/25
26020 Palazzo Pignano Cremona - Italia
Tel. +39 0373 938345 - Fax +39 0373 982427
marketing@drnsrl.it

www.drnsrl.it